Service Manual

DAQSTATION
DX100P/DX200P

SM 04L05A01-01E

YOKOGAWA
Yokogawa Electric Corporation

SM 04L05A01-01E
2nd Edition

Important Notice to the User

This manual contains information for servicing YOKOGAWA's DAQSTATION DX100P/DX200P. Check the serial number to confirm that this is the correct service manual for the instrument to be serviced. *Do not use the wrong manual*.

Before any maintenance and servicing, *read all safety precautions carefully*.

Only properly trained personnel may carry out the maintenance and servicing described in this service manual.

Do not disassemble the instrument or its parts, unless otherwise clearly permitted by this service manual.

Do not replace any part or assembly, unless otherwise clearly permitted by this service manual.

In principle, Yokogawa Electric Corporation (YOKOGAWA) does not supply parts other than those listed in the customer maintenance parts list in this service manual (mainly *modules* and *assemblies*). Therefore if an assembly fails, the user should replace the whole assembly and *not* components within the assembly (see "Note"). If the user attempts to repair the instrument by replacing individual components within the assembly, YOKOGAWA assumes no responsibility for any consequences such as defects in instrument accuracy, functionality, reliability, or user safety hazards.

YOKOGAWA does not offer more detailed maintenance and service information than that contained in this service manual.

All reasonable efforts have been made to assure the accuracy of the content of this service manual. However, there may still be errors such as clerical errors or omissions. YOKOGAWA assumes no responsibility of any kind concerning the accuracy or contents of this service manual, nor for the consequences of any errors.

Note

YOKOGAWA instruments have been designed in a way that the replacement of electronic parts can be done on an assembly (module) basis by the user. YOKOGAWA instruments have also been designed in a way that troubleshooting and replacement of any faulty assembly can be done easily and quickly. Therefore, YOKOGAWA strongly recommends replacing the entire assembly over replacing parts or components within the assembly. The reasons are as follows:

- The instruments use high-performance microprocessors, large scale CMOS gate arrays, and surface-mount components to provide state-of-the-art performance and functions.
- Repair of components can only be performed by specially trained and qualified maintenance personnel with special highly-accurate tools, including costly ones.
- When taking the service life and cost of the instruments into consideration, the replacement of assemblies offers the user the possibility to use YOKOGAWA instruments more effectively and economically with a minimum in downtime.

Disk No. SM12
2nd Edition : March 2002 (YK)

Introduction

This manual contains information for servicing YOKOGAWA's DAQSTATION DX100P/DX200P.

Note

This is the second edition of the manual since style number 3 (S3), dated March 2002.

WARNING

This service manual is to be used by properly trained personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to the safety precautions prior to performing any servicing. Even if servicing is carried out according to this service manual, or by qualified personnel, YOKOGAWA assumes no responsibility for any result occurring from that servicing.

Safety Precautions

The following general safety precautions must be taken during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or with specific warnings given elsewhere in this manual violates safety standards of design, manufacture, and intended use of the instrument.
Yokogawa Electric Corporation assumes no liability for the customer's failure to comply with these requirements.

WARNING

Use the Correct Power Supply
Ensure the source voltage matches the voltage of the power supply before turning ON the power.

Use the Correct Power Cord and Plug
To prevent an electric shock or fire, be sure to use the power supply cord supplied by YOKOGAWA (/H5), or fit specification. The main power plug must be plugged in an outlet with a protective grounding terminal. Do not invalidate protection by using an extension cord without protective grounding.

Connect the Protective Grounding Terminal
The protective grounding terminal must be connected to ground to prevent an electric shock before turning ON the power.

Do Not Impair the Protective Grounding
Never cut off the internal or external protective grounding wire or disconnect the wiring of the protective grounding terminal. Doing so creates a potential shock hazard.

Do Not Operate with Defective Protective Grounding or Fuse
Do not operate the instrument if you suspect the protective grounding or fuse might be defective.

Use the Correct Fuse

To prevent fire, make sure to use a fuse of the specified rating for current, voltage, and type. Before replacing the fuses, turn OFF the power and disconnect the power source. Do not use a different fuse or short-circuit the fuse holder.

Do Not Operate Near Flammable Materials

Do not operate the instrument in the presence of flammable liquids or vapors. Operation of any electrical instrument in such an environment constitutes a safety hazard.

Do Not Remove Any Covers

There are some components inside the instrument containing high voltage. Do not remove any cover, if the power supply is connected. The cover should be removed by qualified personnel only.

Ground the Instrument before Making External Connections

Connect the protective grounding before connecting the instrument to a measurement or control unit.

Safety Symbols Used on Equipment and in Manuals

To avoid injury, death of personnel or damage to the instrument, the operator must refer to an explanation in the user's manual.

High temperature. To avoid injury caused by hot surfaces, the operator must not touch the heatsink.

Protective grounding terminal, to protect against electrical shock.
This symbol indicates that the terminal must be connected to ground before operation of equipment.

This symbol represents a functional grounding terminal. Such terminals should not be used as a protective grounding terminal.

WARNING

A WARNING sign calls attention to a procedure, practice, or condition, that could result in the injury or death of personnel if not correctly performed or adhered to.

CAUTION

A CAUTION sign calls attention to a procedure, practice, or condition, that could result in damage to or the destruction of part of the instrument if not correctly performed or adhered to.

Overview of This Manual

This manual is meant to be used by qualified personnel only. Make sure to read the safety precautions at the beginning of this manual as well as the warnings and cautions contained in the chapters relevant to any servicing you may be carrying out.

This manual contains the following chapters.

1 Principles of Operation
Provides an introduction and safety considerations.

2 Testing
Explains the tests for checking the performance of the instrument.

3 Replacing Parts
Describes maintenance which can be performed by users.

4 Adjustments
Explains the adjustments which can be performed by users.

5 Troubleshooting
Presents procedures for troubleshooting and how to proceed in case parts need to be replaced.

6 Schematic Diagram
Provides a system configuration diagram.

7 Customer Maintenance Parts List
Contains exploded views and a list of replaceable parts.

Specifications are not included in this manual. For specifications, refer to IM 04L05A01-01E or IM 04L06A01-01E.

Contents

1.1 Block Diagram of the DX100P and the DX200P

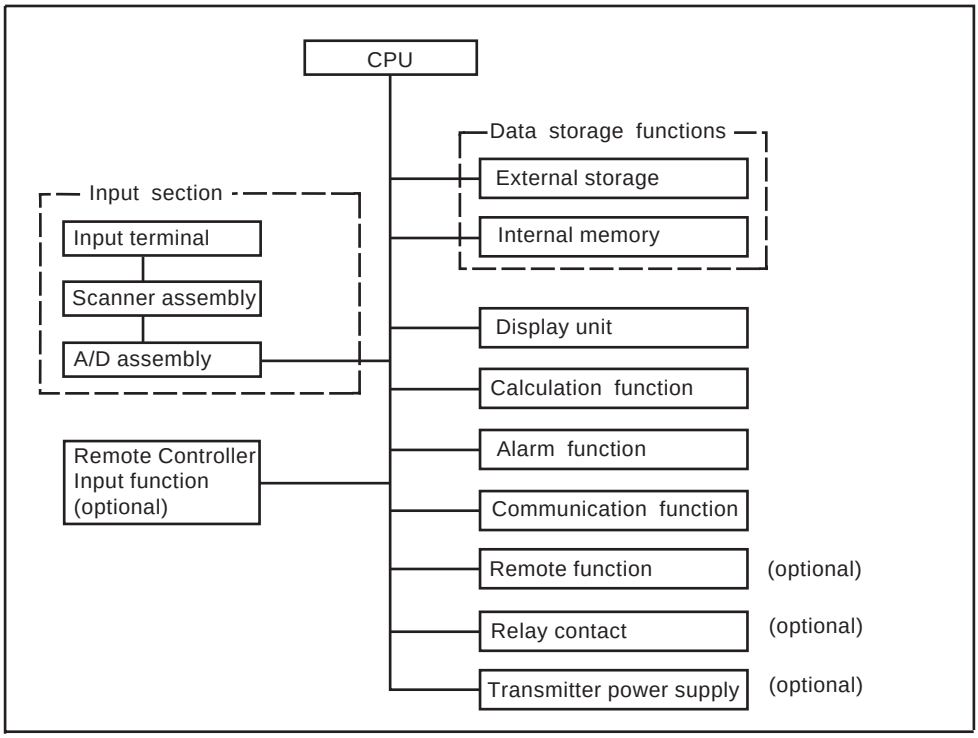


Figure 1 Block diagram

For details, see schematic diagram page 6-1 and 6-2.

1.2 Input Section

A/D Assembly

The A/D assembly includes items such as a programmable gain amp, voltage reference, PWM modulator, current source for RTD measurements, differential amp, voltage source for RJC, serial parallel converter, control logic, and an occurred scanner SSR control signal.

The A/D assembly uses a sinewave oscillating type self-resonant switching power supply (DC/DC converter), and noise filtering is achieved by signal integration.

The A/D assembly detects the frequency of the power while it is ON and the integrated time becomes 20 ms or 16.67 ms. Therefore it carries a very high rate of noise rejection for the power frequency (in auto mode).

In case the power frequency of the instrument and of the measured object are different, the appropriate integrated time is manually selectable. In case of the DX106P, DX112P, DX210P, DX220P, or DX230P, the selection of 100 ms for 50/60 Hz is also available. A 16 bit resolution is achieved regardless of the integrated time.

Input Terminal

The input terminal is removable. The internal printboard is isothermal because a print board with a metal core is being used. Therefore, stable reference junction compensation is realized.

Scanner Assembly

An in-house SSR (solid state relay) is being used for the scanner. The SSR, having a semiconductor switch, has a withstand voltage as high as 1500 V and a leakage current of only 1 nA. For that reason, it has the following features.

- Semi-infinite life due to the absence of mechanical contacts
- Silent operation
- No occurrence of thermoelectric power.

On the other hand, compared to a mechanical relay, the SSR has the disadvantage of a bigger ON resistance and OFF capacity. As a result, RTD measurement and noise resistance characteristics are affected. Regarding RTD measurements, a differential amp was inserted into the previously mentioned analog circuit without increasing the number of parts, so that it would receive no influence from ON resistance.

For RTD measurements there is generally no insulation between channels.

Data Storage Functions

For storing data, the DX100P/DX200P has 1.2 MB of internal memory and is equipped with a Zip drive, or an ATA flash memory card drive. The measured data can also be saved to external storage media such as floppy disks, Zip disks, and ATA flash memory cards.

Display Unit

The DX100P/DX200P has a 5.5-inch (DX100P) or 10.4-inch (DX200P) TFT color LCD on which it displays the measured results (240 (vertical) $\times$ 320 (horizontal) pixels for the DX100P or 480 (vertical) $\times$ 640 (horizontal) pixels for the DX200P).

Calculation Function

The DX100P/DX200P performs differential computation, linear scaling, and square roots using a microprocessor on the CPU board.

Alarm Function

The following six alarm types can be set.
High limit (H), low limit (L), differential high limit (h), differential low limit (l), rate-of-change on increase (R), rate-of-change on decrease (r), alarm delay upper limit alarm (T), or alarm delay lower limit alarm (t).

Other Functions

- **Communication Function**
  Ethernet (standard)
  RS-232/RS-422A interface added (optional).
- **Remote Function**
  The trigger, start/stop, time adjustment, and other functions can be controlled remotely (optional).
- **Relay Contact**
  Alarm output and memory end/fail output (optional).
- **Transmitter Power Supply**
  DC24 V output for transmitter (optional).
- **Remote Controller Input Function**
  Remote controller input (optional).

2.1 Acceptance Test and Self Diagnostic Test

Acceptance Test

This section describes the procedure to perform the acceptance test.

1 Read the preface to the user's manual, "Checking the Package Contents" and verify that you have all of the contents.
2 Make sure to understand the operating procedures as described in the user's manual.
3 Check each function using the user's manual.
4 Read and implement the "Self Diagnostic Test" below.
5 Read and implement section 2.2, "Performance Test."

Self Diagnostic Test

The DX100P/DX200P is provided with complete self diagnostic functions to enhance reliability in measurement and serviceability.
When you turn ON the power, the DX100P/DX200P will automatically execute the following types of diagnoses alternately and display the results. After these tests are completed, the DX100P/DX200P is ready for use.

- Main ROM sum test
- Main RAM write/read test
- A/D and A/D ROM sum test
- Acquisition memory test

Table 2 shows the order and results of the self diagnostic tests.

Code	Message
901	ROM failure.
902	RAM failure.
910	A/D memory failure for all input channels.
911	Channel 1 A/D memory failure.
912	Channel 2 A/D memory failure.
913	Channel 3 A/D memory failure.
914	Channel 4 A/D memory failure.
921	Channel 1 A/D calibration value error.
922	Channel 2 A/D calibration value error.
923	Channel 3 A/D calibration value error.
924	Channel 4 A/D calibration value error.
930	Memory acquisition failure.
940	The Ethernet module is down.

2.2 Performance Test

This paragraph describes several tests to verify the operation of the DX100P/DX200P's performance against published specifications. The performance tests need not be performed in any specific order.

Before You Begin

Testing Conditions

When carrying out the performance tests described in the following pages, make sure the instrument is tested under the following conditions:

Ambient temperature:	23±2°C
Humidity:	55±10%RH
Power supply voltage:	90 to 132 VAC, 180 to 250 VAC
Power supply frequency:	50/60 Hz ± (Power supply frequency x 1%)

Preparation

Perform the following steps before carrying out the performance tests described in the following pages.

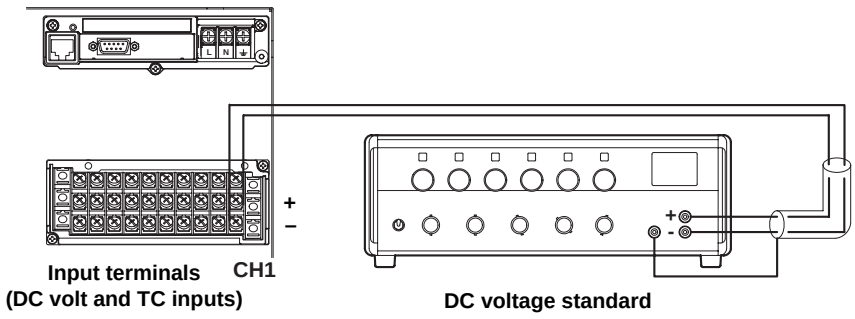
1. Turn ON the power supply and verify that the DX100P/DX200P passes the self diagnostic test without any problems.
2. Allow a warm up time of at least 30 minutes for required instruments and the unit under test.

Instruments Required for Tests

Instrument	Required Specifications	Recommended
DC Voltage Generator	Accuracy: ± 50ppm	YOKOGAWA 2552
Decade Resistance Box	Accuracy: ± 10ppm	YOKOGAWA 279301
Thermostatic Chamber	± 0.01°C	
Thermocouple	Calibrated	

Measurement Accuracy Test

Connection



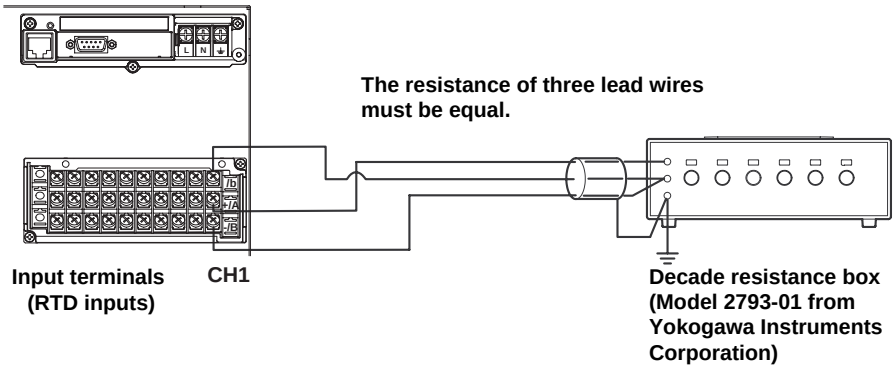


Figure 2.1 Connection diagram

Procedure

1 Connect the equipment as shown in figure 2.1.
2 Carry out the preparations as described in 2.3.1.
3 Apply input voltage/resistance to the DX100P/DX200P and verify that the measured value lies within the tolerance for each range according to the table below.

Table of Tolerance

Range	Input Voltage	Tolerance	Specification
20 mV	–20 mV	–20.04 to –19.96	±(0.1% of reading + 2 digits)
	0 mV	–0.02 to +0.02	
	+20 mV	+19.96 to +20.04	
60 mV	–60 mV	–60.08 to –59.92	
	0 mV	–0.02 to +0.02	
	+60 mV	+59.92 to +60.08	
200 mV	–200 mV	–200.4 to –199.6	
	0 mV	–0.2 to +0.2	
	+200 mV	+199.6 to +200.4	
2 V	–2 V	–2.004 to –1.996	
	–1 V	–1.003 to –0.997	
	0 V	–0.002 to +0.002	
	+1 V	+0.997 to +1.003	
	+2 V	+1.996 to +2.004	
6 V	–6 V	–6.008 to –5.992	
	0 V	–0.002 to +0.002	
	+6 V	+5.992 to +6.008	
20 V	–20 V	–20.04 to –19.96	
	0 V	–0.02 to +0.02	
	+20 V	+19.96 to +20.04	
50 V	–30 V	–30.06 to –29.94	±(0.1% of reading + 3 digits)
	0 V	–0.03 to +0.03	
	+30 V	+29.94 to +30.06	

Range	Temperature	Input Resistance	Tolerance	Specification
Pt100	–200°C	18.52 Ω	–200.6 to –199.4	±(0.15% of reading+0.3°C)
	0°C	l00.00 Ω	–0.3 to +0.3	
	600°C	313.71 Ω	+598.8 to +601.2	

For the /N1 model

Range	Temperature	Input Resistance	Tolerance	Specification
Pt100	–200°C	18.52 Ω	–201.2 to –198.8	±(0.3% of reading+0.6°C)
	0°C	l00.00 Ω	–0.6 to +0.6	
	600°C	313.71 Ω	+597.6 to +602.4	
Cu10 (GE)	–200°C	1.326 Ω	–201.8 to –198.2	±(0.4% of reading+1.0°C)
	0°C	9.036 Ω	–1.0 to +1.0	
	300°C	20.601 Ω	+297.8 to +302.2	
Cu25	–200°C	3.750 Ω	–201.4 to –198.6	±(0.3% of reading+0.8°C)
	0°C	25.000 Ω	–0.8 to +0.8	
	300°C	56.875 Ω	+298.3 to +301.7	

Note

The error of a connected apparatus is not included in the tolerance.

Reference Junction Compensation Accuracy Test

Connection

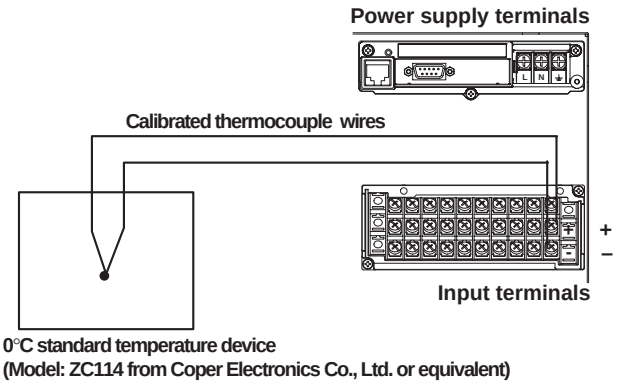


Figure 2.2 Connection diagram

Procedure

1 Connect the instruments as shown in figure 2.2.
2 Carry out the preparations as described in 2.3.1.
3 Carry out stable ambience and secure the terminal cover to avoid the influence of wind.
4 Set the input range for the desired thermocouple, and set the span to ±50°C.
5 Verify that the measured value lies within the tolerance.

Tolerance

Temperature	Thermocouple	Tolerance
0°C	K,T	± 0.5°C *

* Determining the actual temperature measured accuracy consists of adding the RJC compensation accuracy and temperature range accuracy. In other words, the actual measured value lying within the tolerance consists of adding this value and 0˚C measured accuracy (T and K range).
Test should be done under stable ambience with the terminal cover secured to avoid the influence of wind.

3.1 Replaceable Parts

When replacement of parts is necessary, we strongly recommend replacement with an assembly unit. YOKOGAWA instruments are designed in a way that the replacement of parts can be done on an assembly (module) basis by the user.

Parts supplied by YOKOGAWA are listed in the Customer Maintenance Parts List (CMPL), in chapter 7. Smaller parts than listed in the CMPL are not supplied. The CMPL comprises the following:

- The item number
- The YOKOGAWA part number
- The item quantity
- A description

3.2 When Repair is Necessary

When repair is necessary, clearly state the information listed below and forward it to the nearest sales representative or service center. Addresses may found on the back cover of this manual.

- Your address.
- Name and telephone number of the person in charge.
- Model code and suffix code of the instruments, which can be found on the name plate. The name plate is found on the right inside of the recorder.
- Detailed explanation of the problem, including any messages that were displayed and any measures taken to solve the problem.

3.3 Recommended Replacement Periods for Worn Parts

To maintain the reliability of this recorder, and in order for this recorder to deliver outstanding performance for a long time, periodic replacement of worn parts is recommended.

The recommended replacement periods for worn parts are shown in the following table. The periods shown in this table assume that the recorder is being used under standard operating conditions. Please consider the actual operating conditions when determining the replacement periods for your recorder.
The replacement of the LCD must be conducted by qualified YOKOGAWA staff. When required, contact your nearest Sales & Service Office; the addresses may be found on the back of this manual.

DX100P

Item	Replacement	Part Name	Part Number	Specifications	Quantity Used
Fuse	2 years	FUSE	A1347EF	250 V, 1 A, time lag (except for /P1 model)	1
Fuse	2 years	FUSE	A1352EF	250 V, 4 A, time lag (for /P1 model)	1
LCD	5 years	Back light module			1
Battery	10 years	Lithium battery			1
Rubber strip	5 years	Dust and water proof rubber strip		for front panel for front cover	1 each
Zip disk drive	5 years	–		–	1
PWB assembly	5 years 5 years 5 years	Power Assy* Sub Power Assy* AD Assy*			1 1 Up to models

* Contains aluminium electrolytic capacitors.

DX200P

Item	Replacement	Part Name	Part Number	Specifications	Quantity Used
Fuse	2 years	FUSE	A1423EF	250 V, 1.25 A, time lag (except for /P1 model)	1
Fuse	2 years	FUSE	A1354EF	250 V, 6.3 A, time lag (for /P1 model)	1
LCD	5 years	Back light module			1
Battery	10 years	Lithium battery			1
Rubber	5 years	Dust and water proof		for front panel	1 each
strip		rubber strip		for front cover	
Zip disk drive	5 years	–		–	1
PWB assembly	5 years 5 years 5 years	Power Assy* Sub Power Assy* AD Assy*			1 1 Up to models

* Contains aluminium electrolytic capacitors.

Note

The recommended replacement period for the back light module is the period when the brightness falls to half. The speed of degradation of the brightness varies depending on the operating conditions, and the judgement is subjective. These factors should be considered when determining the actual replacement period.

3.4 Replacing the Fuse

Replace the fuse at least once every two years for preventive maintenance.
DX100P

WARNING

- For safety reasons, make sure to turn OFF the power switch and disconnect the recorder from the main power supply before replacing the fuse.
- To prevent the possibility of fire, use only the specified fuse purchased from YOKOGAWA.
- Never short circuit the fuse holder to bypass the use of a fuse.
- To avoid the possibility of electric shock, open the front panel only when replacing the fuse.
- Do not touch the rear side of the front panel when replacing the fuse, because it can become hot.
- Make sure not to damage the cable while replacing the fuse.

Follow the procedures below to replace the fuse.

1 Turn OFF the power switch.
2 Disconnect the recorder from the main power supply.
3 Open the cover and remove the two screws.
4 Pull the front panel slightly toward you and lift it.
5 While pushing in the fuse carrier located to the right of the power switch, turn it counter-clockwise approximately 45 degrees. The carrier and the fuse will slide out.
6 Replace with a new fuse, insert the carrier in the fuse holder, and turn it clockwise while pushing in the carrier to fix it in place.
7 Lift the front panel slightly, and attach it to the top and then the bottom of the rubber packing. Secure the front panel with screws.

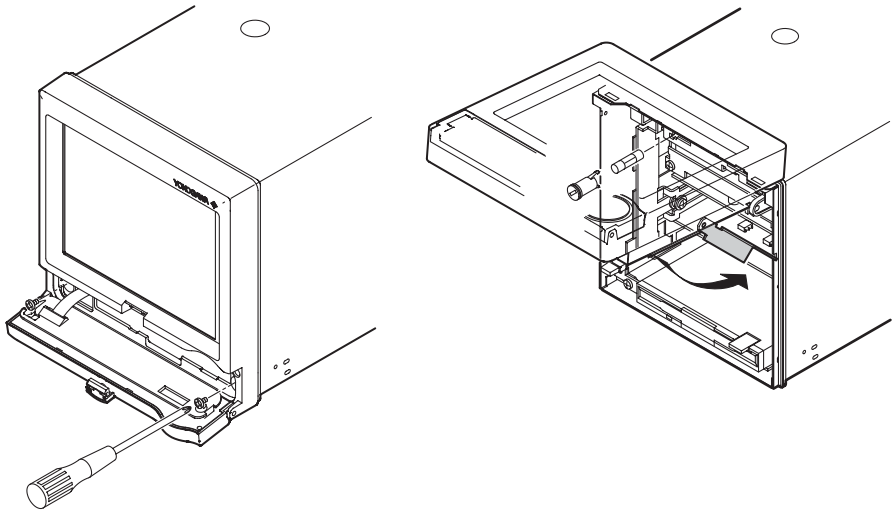


Figure 3.1 Fuse illustration (DX100P)

Note

For recorders which are mounted vertically side-by-side, the front panels will interfere with those of the instrument above it such that they cannot be opened. Therefore you must first open the top front panel and then the ones directly below it, one by one. For the same reason, when closing front panels, first close the bottom front panel and then the ones above it.

DX200P

WARNING

- For safety reasons, make sure to turn OFF the power switch and disconnect the recorder from the main power supply before replacing the fuse.
- To prevent the possibility of fire, use only the specified fuse purchased from YOKOGAWA.
- Never short circuit the fuse holder to bypass the use of a fuse.

Follow the procedures below to replace the fuse.

1 Turn OFF the power switch.
2 Disconnect the recorder from the main power supply.
3 While pushing in the fuse carrier located to the right of the power switch, turn it counter-clockwise approximately 45 degrees. The carrier and the fuse will slide out.

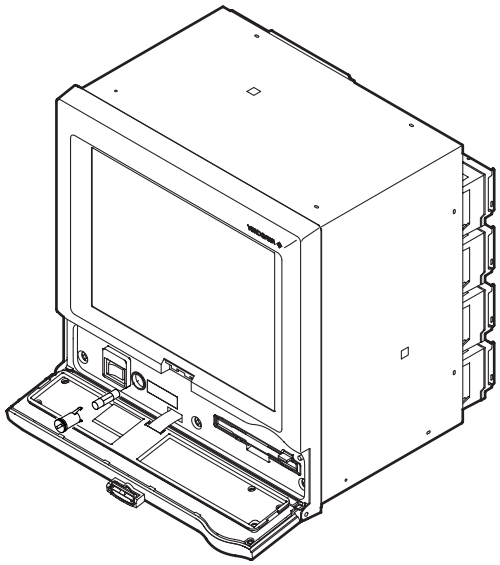


Figure 3.2 Fuse illustration (DX200P)

4 Replace with a new fuse, insert the carrier to the fuse holder, and turn it clockwise while pushing in the carrier to fix it in place.

3.5 Replacing the Battery

This battery will last for ten years under normal operating conditions. For replacement, please contact your nearest sales and service office; addresses may be found on the back cover of this manual. To avoid injury, do not replace the lithium battery yourself or disassemble this recorder to attempt the replacement.

4.1 Before You Begin

Adjustment is required when the performance test results in an excessive tolerance error, or after replacing the AD board assembly. In addition, adjustments are recommended once a year to maintain high accuracy.

Adjustment Conditions

When carrying out the adjustments described below, make sure the recorder's environment meets the following conditions.

Ambient temperature:	23 ± 5°C
Humidity:	35 to 75% RH
Power supply voltage:	rated voltage ± (rated voltage x 5%)

Preparation

Perform the following steps before carrying out the adjustments.

1. Turn on the power supply and verify that the unit under adjustment passes the self-diagnostic tests without any problems.
2. Allow a warm-up time of at least 30 minutes for the required instruments and the unit under adjustment.

Required Instruments

Instrument	Required Specifications	Recommended
DAQSTATION	Properly operational	YOKOGAWA DX100P/DX200P
DC voltage standard	Accuracy: ±50ppm of setting	YOKOGAWA Resolution: 10 μV 2552
Decade resistance box	Accuracy: ±0.01%	YOKOGAWA 2793
Personal computer	With ETHERNET or RS-232 or RS-422A/485 interface (depends on your system)	IBM PC-AT

4.2 AD Board Offset and Gain Adjustment

An EEPROM for saving calibrated values is located on every AD board, so you must perform adjustments on each board.

Manual Adjustment

Connection

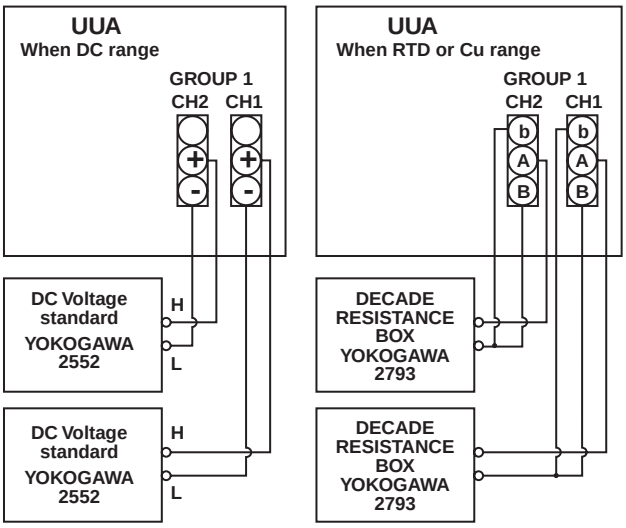


Figure 4.1 Connection diagram.

The AD board may be shared by a number of channels. Connect the object channels to the AD board you want to adjust using the table below as a reference.

Model	A/D No. 1		A/D No. 2		A/D No. 3		A/D No. 4	
	Zero	FS	Zero	FS	Zero	FS	Zero	FS
DX102P	CH1	CH2	-	-	-	-	-	-
DX104P	CH1	CH2	CH3	CH4	-	-	-	-
DX106P	CH1	CH2	-	-	-	-	-	-
DX112P	CH1	CH2	-	-	-	-	-	-
DX204P	CH1	CH2	CH3	CH4	-	-	-	-
DX208P	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
DX210P	CH1	CH2	-	-	-	-	-	-
DX220P	CH1	CH2	CH11	CH12	-	-	-	-
DX230P	CH1	CH2	CH11	CH12	CH21	CH22	-	-

Procedure

1 Connect the equipment according to figure 4.1.

2 Turn on the power while pushing the ≠ key and the **DISP/ENTER** key on the UUA (unit under adjustment) to activate the adjustment mode.

DX100P **DX200P**

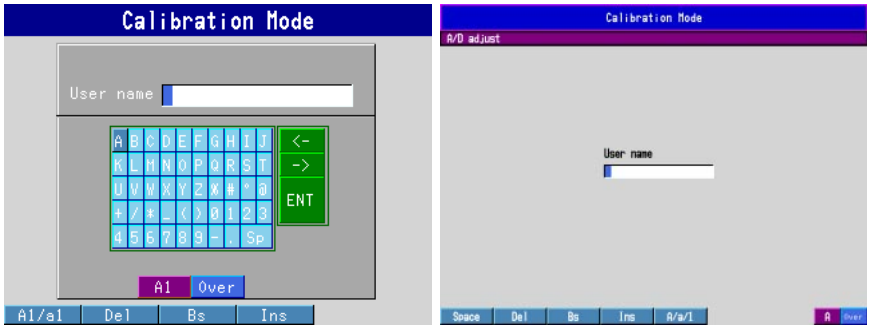


Figure 4.2 User name input screen.

3 Input the User name and press **ENTER**.

4 Input the User ID and press **ENTER**.

5 Input the Password and press **ENTER**. The Calibration Mode screen will appear in the display.

DX100P **DX200P**

Figure 4.3 A/D No. selecting screen.

6 Select the A/D number that you wish to adjust and press **ENTER**. The screen in figure 4.4 will appear.

DX100P **DX200P**

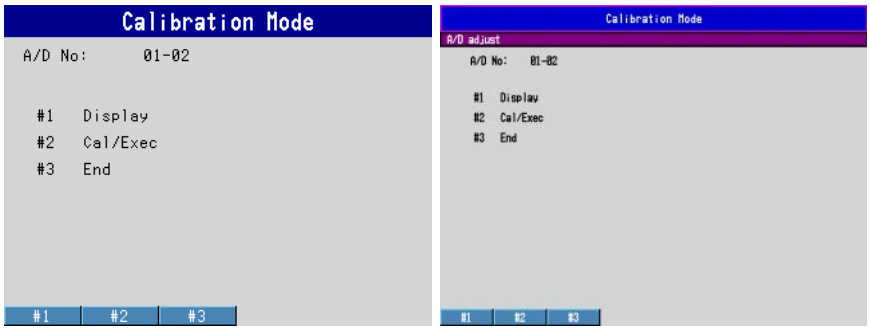


Figure 4.4 Task item select on screen.

7 Select item #2 for **Cal/Exec**. The screen in figure 4.5 appears.

DX100P **DX200P**

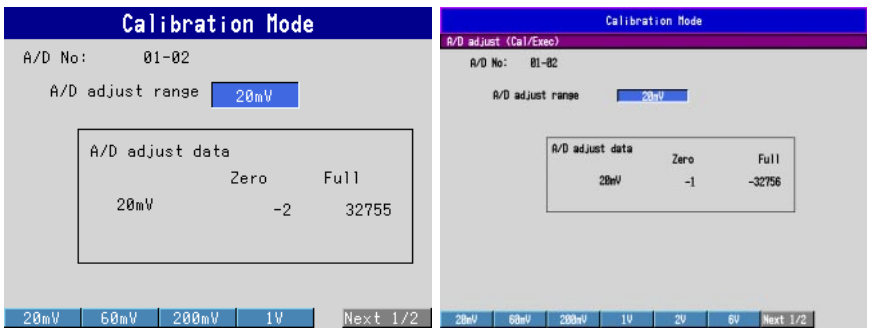


Figure 4.5 Range select on screen.

8 Select the adjusting range then press **ENTER**.

9 Apply DC voltage or resistance to the input of the selected A/D number on the DX100P/DX200P using a voltage standard or decade resistance box.

10 The value is adopted by pressing the **ENTER** key when the calibration value stabilizes.

11 Repeat steps 8 to 10 for all ranges according to table below.

Range	Input at zero point	Input at FS point
20 mV	0 mV	20 mV
60 mV	0 mV	60 mV
200 mV	0 mV	200 mV
1 V	0 V	1 V
2 V	0 V	2 V
6 V	0 V	6 V
20 V	0 V	20 V
Pt100	100 Ω	300 Ω
Pt100*	10 Ω	300 Ω
Cu10*	10 Ω	50 Ω
Cu25*	10 Ω	50 Ω

* When option /N1 is installed

12 If all ranges are set, push the **ESC** key. The screen returns to figure 4.4. Select item #3 to end the task. The dialog box in figure 4.6 appears.

Figure 4.6 calibration value saving screen.

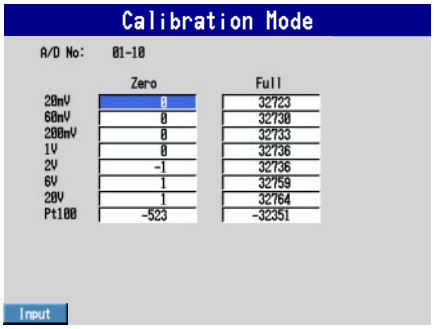
13 Select **Yes** to save the calibrated value to the EEPROM. The screen will return to figure 4.4.

14 Repeat steps 4 to 13 for all A/D number's.

15 If adjustment was successful turn the power to the UUA off.

When you select task #1, *Display* in figure 4.4, the screen below (figure 4.7) appears. Confirm the calibration value of each range (decimal value = 215: shows converted 15 bits data.)

DX100P



DX200P

Figure 4.7 Calibration value confirmation screen.

1 When confirmation is finished, press **ESC** to return to the screen in figure 4.4. Select item #3 to end the task.

2 After step 1, the dialog box in figure 4.6 will appear. Select **No** for normal operation.

CAUTION

Do not change the displayed value, as it influences the measured value.

5.1 Procedure

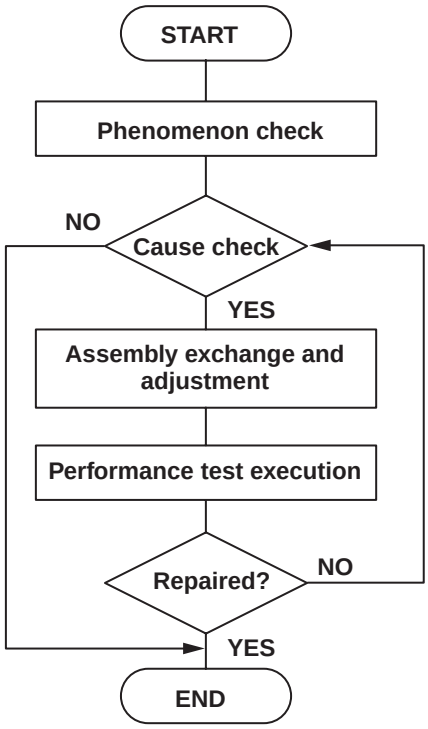
1 Determine the type of problem.
2 Check for possible user error. Check the connections and the settings of equipment to determine whether there was a handling mistake.
3 Execute the self diagnostic test by turning the power ON, and identify any problem items.
4 Analyze the cause of the problem according to the troubleshooting flow chart.

Do not touch the circuit or parts with live voltage because the power unit contains a high-voltage electrical circuit. The p ower unit is furnished with a dedicated cover to prevent electric shock. Do not remove this cover. Never touch any part not subject to adjustment.

Make sure to connect input terminals (voltage or current) correctly. The internal circuit may be damaged when wrongly connected.

5.2 Flow Chart

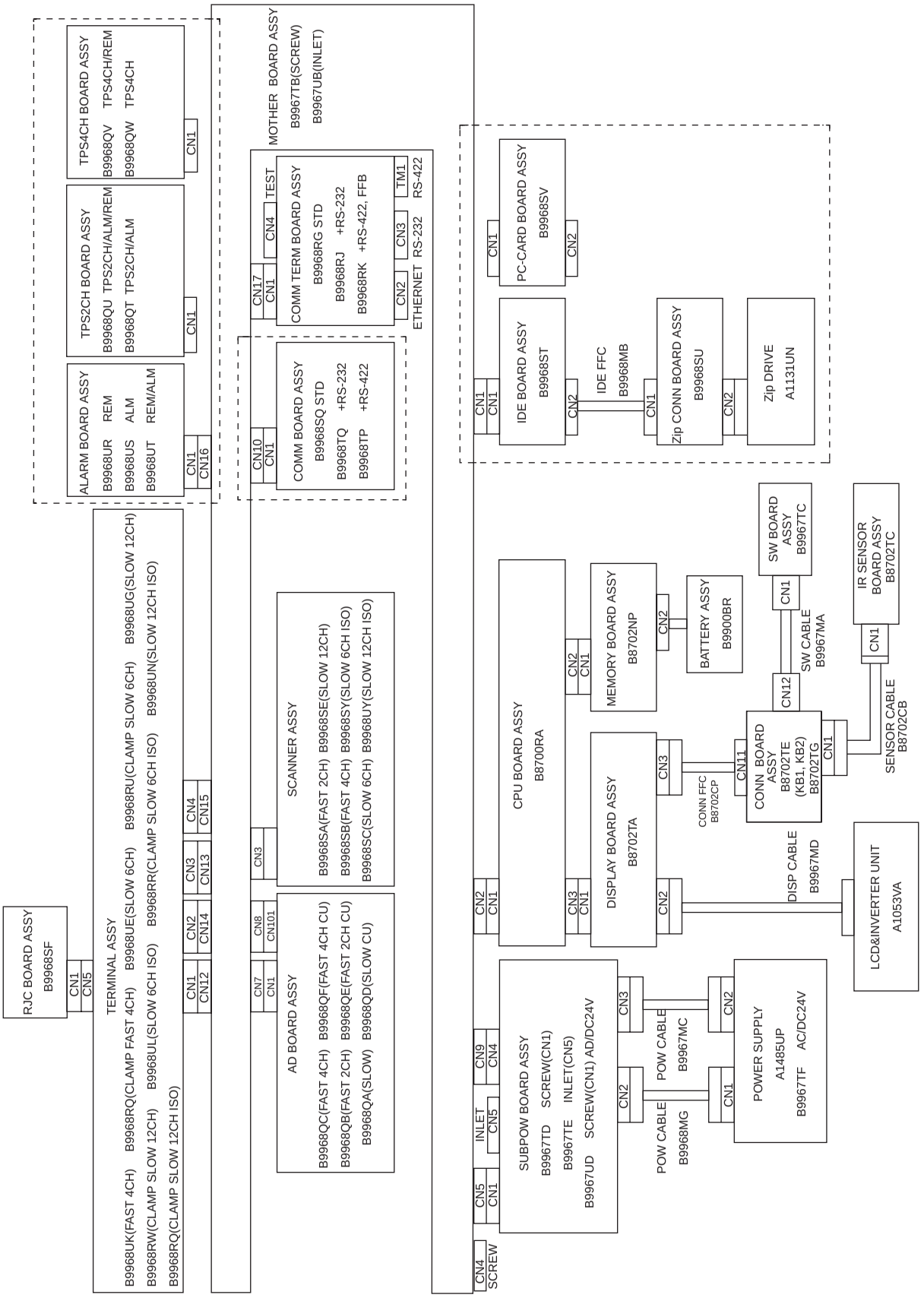
This flow chart consists of general service operations when a fault occurs. This chart is not always suitable for every kind of fault. However, it is recommended to perform operations according to the flow chart.



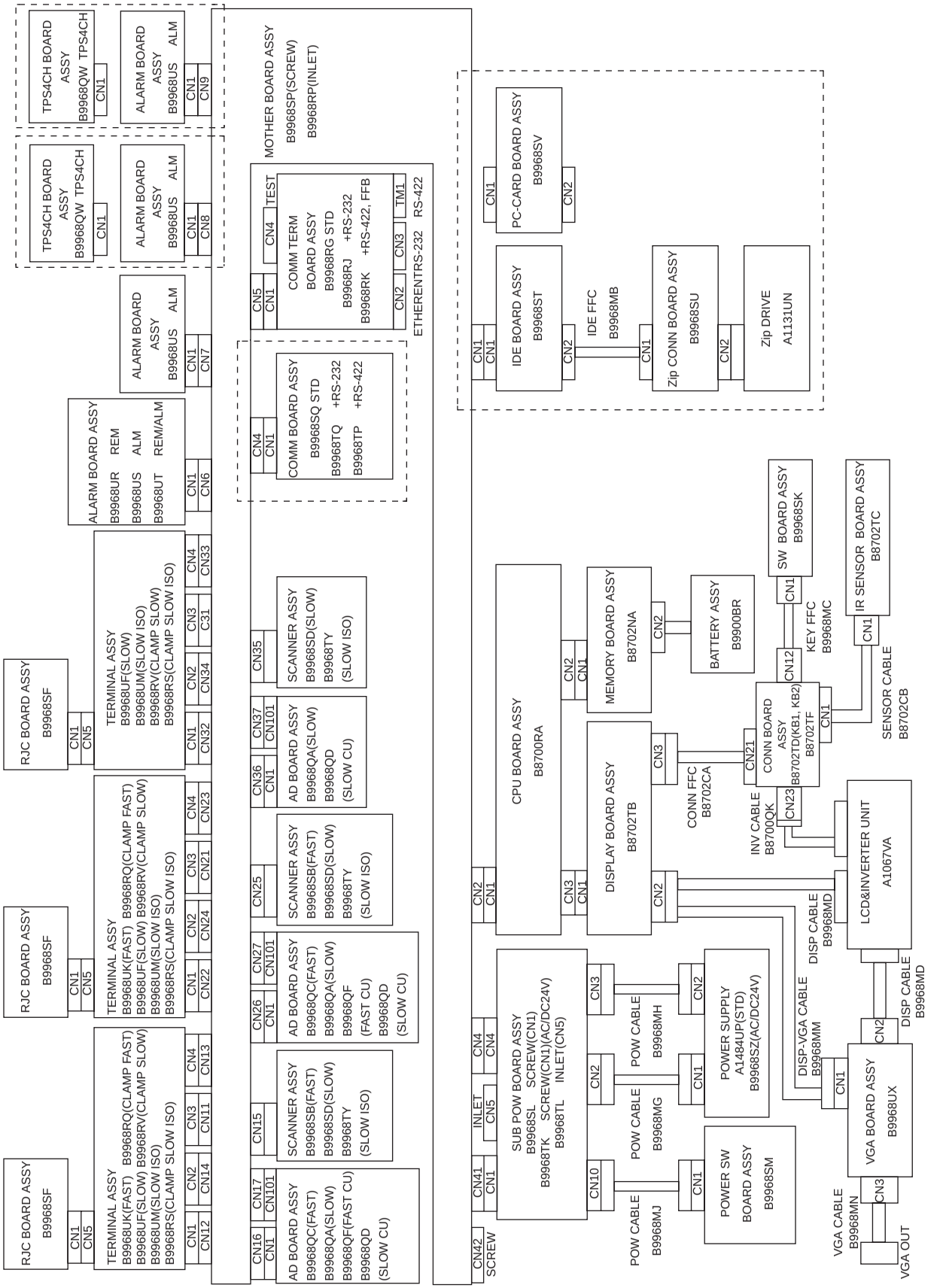
5.3 Troubleshooting Checklist

Trouble	Operational			Check Item
	Check	Adjust	Exchange	
Power is not turned ON	✓			Power cable connection
	✓		✓	Fuse is blown
			✓	Power ass'y
			✓	CPU ass'y
			✓	Memory ass'y
			✓	Display ass'y
FAIL state			✓	CPU ass'y
			✓	Memory ass'y
			✓	Display ass'y
			✓	Optional terminal ass'y
Memory cannot be backed up	✓			Battery connector is disconnected?
	✓			Battery voltage is low (less than +3.0V)
			✓	CPU ass'y
			✓	Memory ass'y
			✓	Display ass'y
Panel key operation is not normal	✓			FFC ass'y of the keyboard is disconnected/broken
			✓	Keyboard ass'y
			✓	CPU ass'y
			✓	Memory ass'y
			✓	Display ass'y
LCD is not normal	✓			FFC ass'y of the LCD is disconnected/ broken
			✓	CPU ass'y
			✓	Memory ass'y
			✓	Display ass'y
			✓	LCD ass'y
Measured value incorrect	✓			Input wiring is disconnected
	✓			Noise
		✓	✓	A/D ass'y
			✓	Scanner ass'y
Measured temperature is incorrect	✓			Input is disconnected
	✓			Noise
	✓			Terminal cover is removed
	✓			RJC INT/EXT setting
		✓	✓	A/D board ass'y
			✓	Input terminal
			✓	Scanner board ass'y
Measured value fluctuates	✓			Power frequency setting is incorrect
	✓			Noise
External storage media is not normal	✓		✓	Floppy disk/Zip disk/PC card drive unit

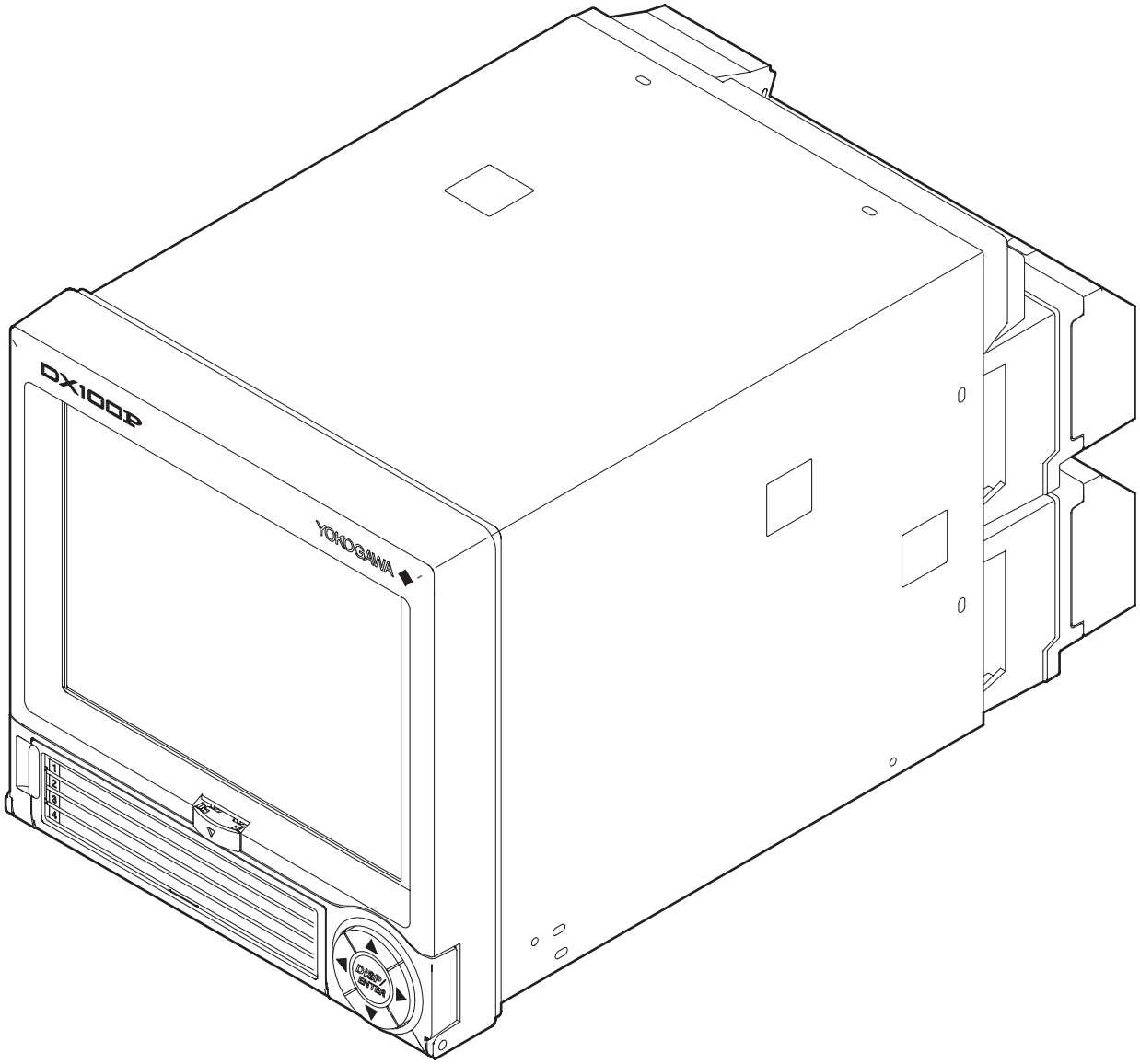
6.1 DX100P Schematic Diagram



6.2 DX200P Schematic Diagram



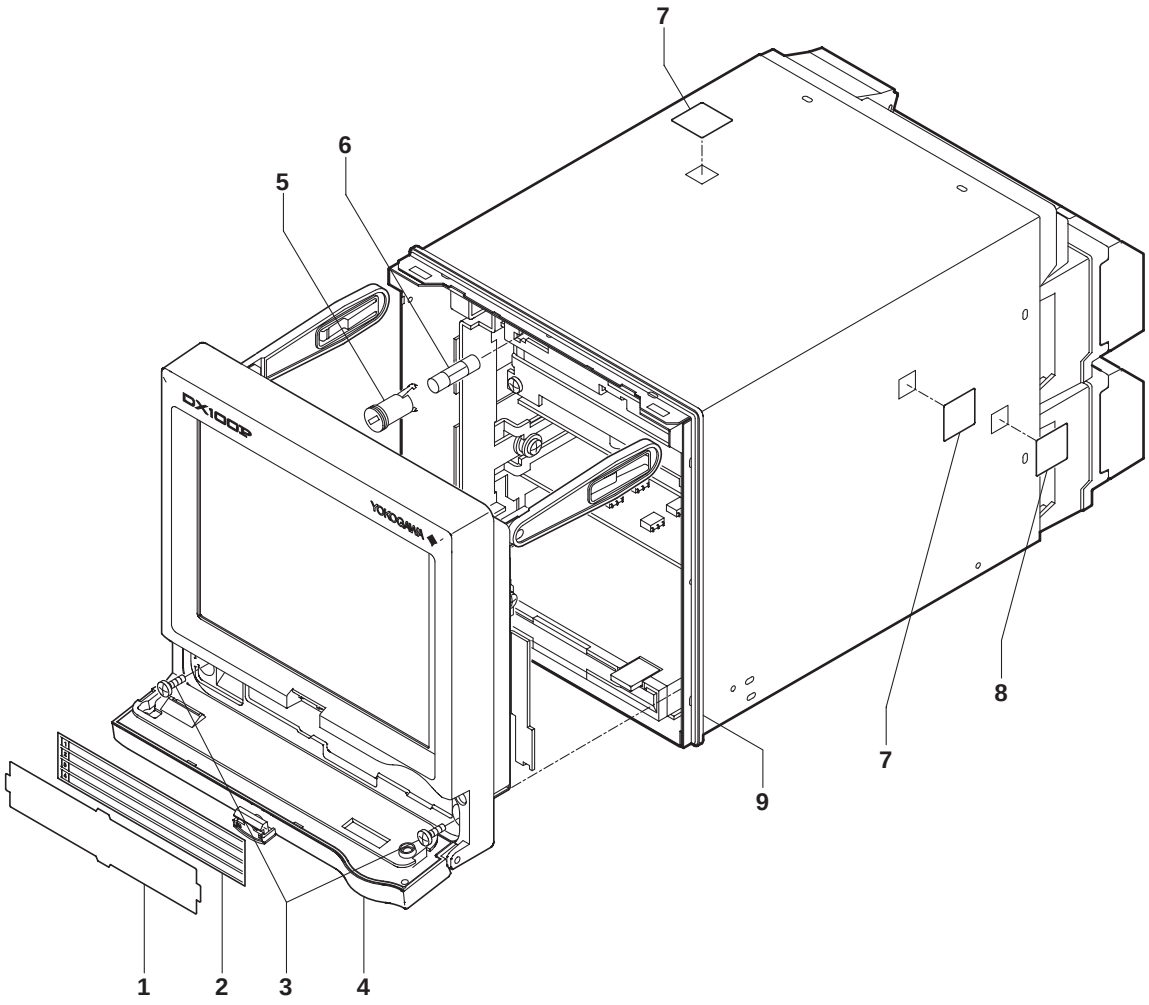
7.1 DX100P Customer Maintenance Parts List



Note:

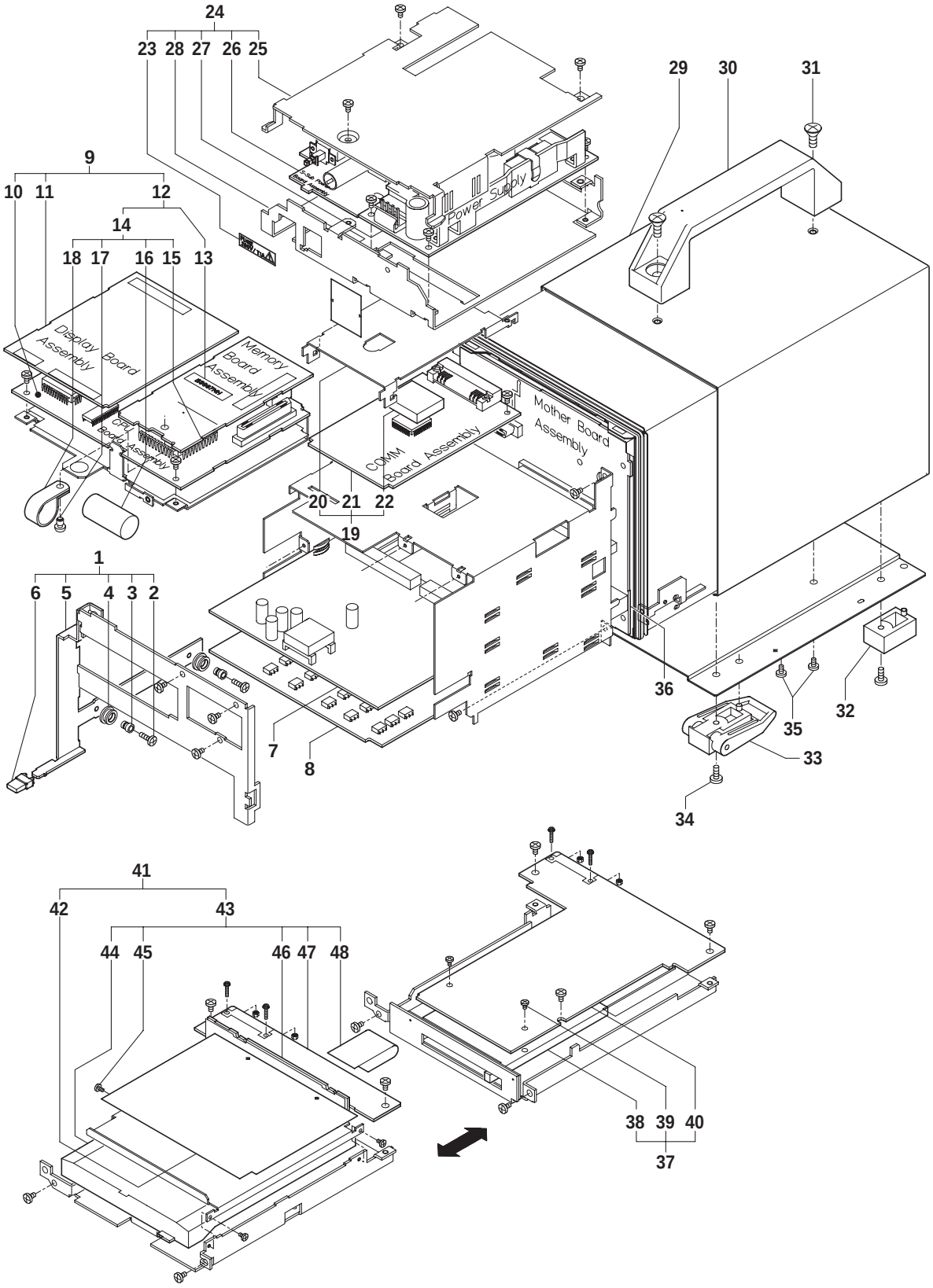
Parts marked with a ◎ symbol are CMPL (Customer Maintenance Parts List) parts.

Complete Set



Item	Part No.	Qty	Description
◎1	B9967AM	1	Tag Cover
◎2	B9967AN	1	Tag Plate (DX102P, 104P) } (select)
	B9967AP	1	Tag Plate (DX106P, 112P) }
◎3	Y9308LB	2	B.H. Screw, M3x8
4	B8702BP	1	Bezel Assembly (see page 7-5)
5	-	1	Fuse Holder
◎6	A1347EF	2	Fuse (not /P1) } (select) (see page 7-8)
	A1352EF	2	Fuse (/P1) }
◎7	B9968AT	4	Sheet (not /H5□)
◎8	B9968AK	2	Sheet (not /H5□)
9	B9967AX	1	Packing

Note:
◎ CMPL Parts


24
23 28 27 26 25
29 30 31
9
10 11 12
14
18 17 16 15 13
Power Supply
Display Board Assembly
Memory Board Assembly
CRT Board Assembly
COMM Board Assembly
Mother Board Assembly
20 21 22
19
1
6 5 4 3 2
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32
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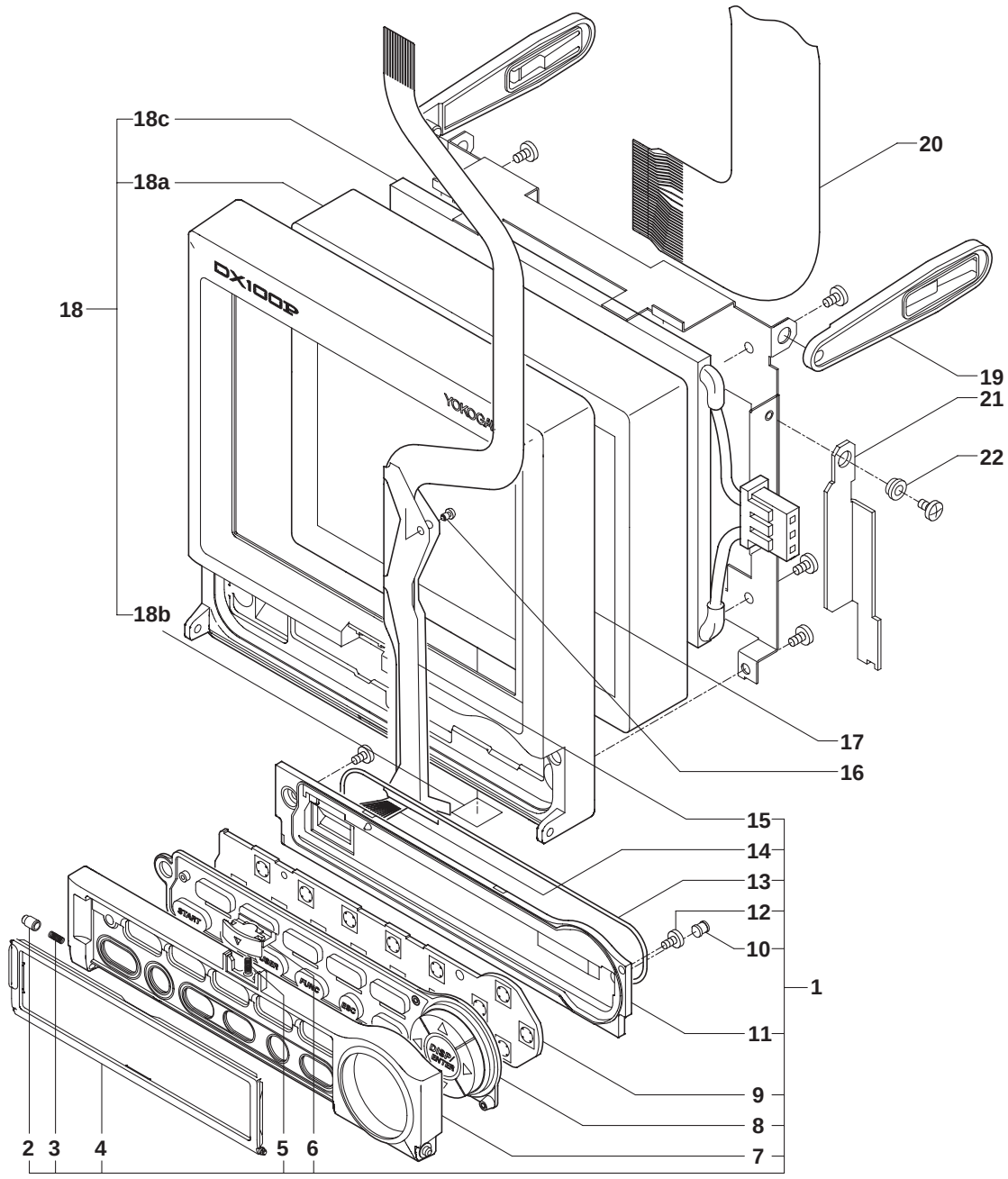
33
34
7
8
41
42 43
44 45 46 47 48
38 39 40
37

Item	Part No.	Qty	Description
1	B9967CS	1	SW Lever Assembly
2	Y9308LB	2	B.H. Screw, M3x8
3	B9960MX	2	Stud
4	B9905CF	2	Roller
5	B9967CT	1	SW Lever
6	B9967BQ	1	Knob
7	B9968QB	1	Fast AD (PT) Assembly (DX102P not /N1) (select)
	B9968QC	1	Fast 2AD (PT) Assembly (DX104P not /N1) (select)
	B9968QA	1	Slow AD (PT) Assembly (DX106P, 112P not /N1) (select)
	B9968QE	1	Fast AD (CU) Assembly (DX102P /N1) (select)
	B9968QF	1	Fast 2AD (CU) Assembly (DX104P /N1) (select)
	B9968QD	1	Slow AD (CU) Assembly (DX106P, 112P /N1) (select)
8	B9968SA	1	2ch Scanner Assembly (DX102P) (select)
	B9968SB	1	4ch Scanner Assembly (DX104P) (select)
	B9968SC	1	6ch Scanner Assembly (DX106P not /N1, /N2) (select)
	B9968SY	1	6ch Scanner Assembly (ISO) (DX106P /N1, /N2) (select)
	B9968SE	1	12ch Scanner Assembly (DX112P not /N1, /N2) (select)
	B9968UY	1	12ch Scanner Assembly (ISO) (DX112P /N1, /N2) (select)
9	B8702LP	1	CPU Board Assembly
10	B8700RA	1	CPU Board Assembly
11	B9967TA	1	Display Board Assembly
12	B8702NP	1	Memory Assembly
13	B8702MP	1	Name Plate
14	-	1	Memory Board & Battery Assembly
15	-	1	Memory Board Assembly
16	B9900BR	1	Battery Assembly
17	B9968EM	1	Rivet
18	A9069KY	1	Clamp
19	B9967DA	1	COMM Board Assembly (/C2) (select)
	B9967DB	1	COMM Board Assembly (/C3) (select)
	B9967DD	1	COMM Board Assembly (not /C2, /C3) (select)
20	B9967DC	1	COMM Board Bracket
21	B9968TQ	1	COMM Board Assembly (/C2) (select)
	B9968TP	1	COMM Board Assembly (/C3) (select)
	B9968SQ	1	COMM Board Assembly (not /C2, /C3) (select)
22	B9968CZ	1	Gel Sheet (not /C3) (select)
	B9968CZ	2	Gel Sheet (/C3) (select)
23	B9967AD	1	Name Plate (not /P1) (select)
	B9967DY	1	Name Plate (/P1) (select)
24	B9967CU	1	S-Power Assembly (not /H5□, /P1) (select)
	B9967CV	1	I-Power Assembly (/H5□ and not /P1) (select)
	B9967DV	1	24V-Power Assembly (/P1) (select)
25	B9967CW	1	Power Bracket Cover (not /P1) (select)
	B9967DW	1	Power Bracket Cover (/P1) (select)
26	B9967TD	1	S-Sub Pow Board Assembly (not /H5□, /P1) (select)
	B9967TE	1	I-Sub Pow Board Assembly (/H5□ and not /P1) (select)
	B9967UD	1	S-Sub Pow Board Assembly (/P1) (select)
27	A1485UP	1	Power Supply (not /P1) (select)
	B9967TF	1	DC Power Board Assembly (/P1) (select)
28	B9967CX	1	Power Bracket Base
29	B9967DP	1	Case Assembly (/H5□)
◎ 30	B9961BQ	1	Handle (/H5□)
◎ 31	Y9412ES	2	F.H. Screw, M4x12 (/H5□) (add G9622AG)
◎ 32	B9961BS	2	Foot (/H5□)
◎ 33	B9961BR	2	Foot (/H5□)
◎ 34	Y9306LS	4	B.H. Screw, M3x6 (/H5□)
35	Y9304LB	2	B.H. Screw, M3x4
36	B9967TB	1	Mother Board Assembly (not /H5□) (select)
	B9967UB	1	Mother Board Assembly (/H5□) (select)

Item	Part No.	Qty	Description
37	B9968GL	1	ATA Drive Assembly (DX1□□P-3)
38	A1492JS	1	Socket
39	Y9208LB	2	Screw
40	B9968SV	1	PC-Card Assembly
41	B9967GD	1	Zip Drive Assembly (DX1□□P-2)
42	B9967DM	1	Sheet
43	B9968GD	1	Zip Drive Assembly
44	A1150UN	1	Memory System
45	Y9203LB	3	Screw
46	B9968SU	1	Zip Conn Board Assembly
47	B9968ST	1	IDE Board Assembly
48	B9968MB	1	IDE FFC

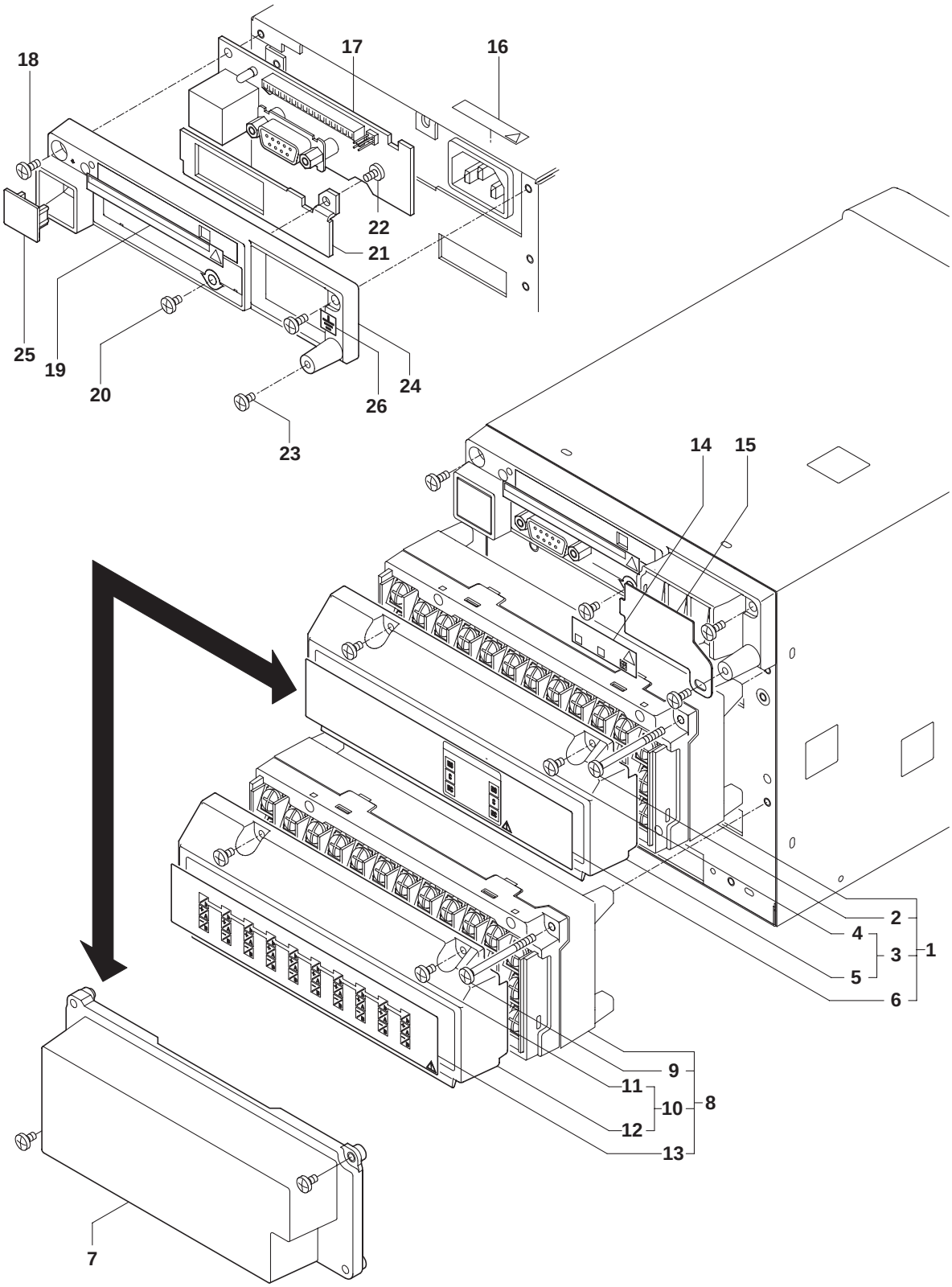
Note:
◎ CMPL Parts

Bezel Assembly



Item	Part No.	Qty	Description
1	B9967BH	1	Key Case Assembly
2	B9967BN	1	Hinge Pin
3	B9567AQ	1	Spring
4	B9967BP	1	Front Plate
5	E9655AL	1	Spring
6	B9967BM	1	Door Knob
7	B9967BJ	1	Front Cover
8	B9967BL	1	Key Top
9	B9967TC	1	SW Board Assembly
10	B9967BZ	1	Micro SW Pin
11	B9967BK	1	Front Case

Item	Part No.	Qty	Description
12	B9967BU	2	Screw
13	B9967AY	1	Packing
14	B9967MA	1	Key FPC
15	B9967BT	1	FPC Guard
16	B9967BX	1	Rivet
17	B8702BQ	1	Sub Bezel Assembly
18	B9967BF	1	LCD Assembly
18a	A1053VA	1	LCD
18b	B9967AQ	1	Name Plate
18c	A1039VZ	1	Back Light Module
19	B9968BM	2	Hinge Arm
20	B9967MB	1	Display FFC
21	B9967BY	1	Stay Bracket
22	B9968EN	1	Bushing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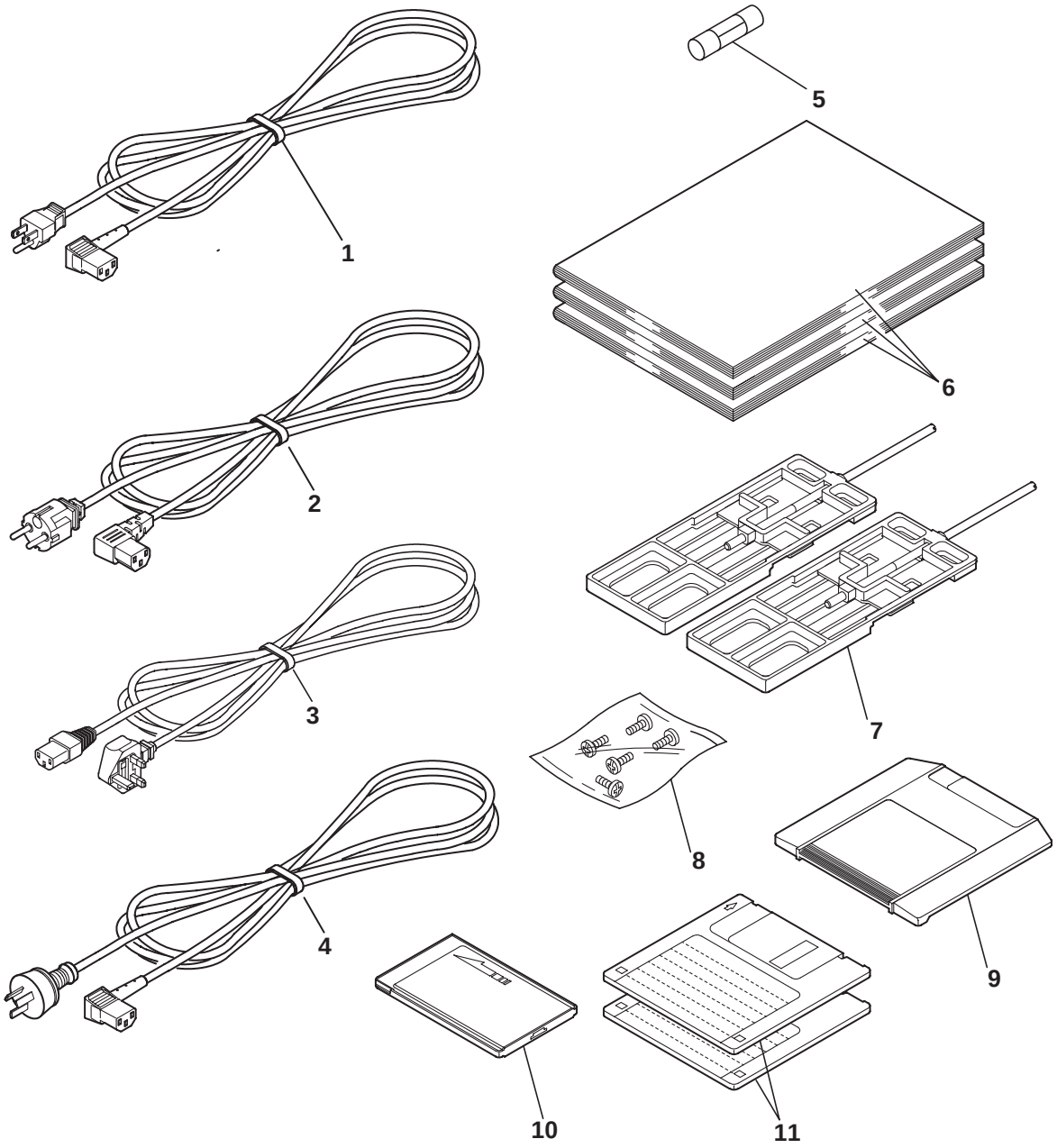
Item	Part No.	Qty	Description	
1	B9968KA	1	Option Terminal Assembly*1	(select)
	B9968KB	1	Option Terminal Assembly*8, *14	
	B9968KC	1	Option Terminal Assembly*2	
	B9968KD	1	Option Terminal Assembly*9, *15	
	B9968KE	1	Option Terminal Assembly*3	
	B9968KJ	1	Option Terminal Assembly*10	
	B9968KK	1	Option Terminal Assembly*7	
	B9968KL	1	Option Terminal Assembly*5	
	B9968KM	1	Option Terminal Assembly*12, *16	
	B9968KN	1	Option Terminal Assembly*6	
	B9968KP	1	Option Terminal Assembly*13, *17	
	B9968KQ	1	Option Terminal Assembly*4	
	B9968KR	1	Option Terminal Assembly*11	
	B9968KT	1	Option Terminal Assembly*19	
	B9968KU	1	Option Terminal Assembly*20, *24	
	B9968KV	1	Option Terminal Assembly*23	
	B9968KW	1	Option Terminal Assembly*22	
	B9968KX	1	Option Terminal Assembly*18	
	B9968KY	1	Option Terminal Assembly*21	
7	B9968DN	1	Conn Cover Assembly (not option)	
2	B9968DJ	2	Screw	
◎3	B9968DF	1	Cover Assembly	
4	B9900SG	2	Screw	
5	B9968DG	1	Cover	
◎6	B9968EW	1	Name Plate*1	
	B9968EX	1	Name Plate*8, *14	
	B9968EY	1	Name Plate*2	
	B9968EZ	1	Name Plate*9, *15	
	B9968FA	1	Name Plate*3	
	B9968FE	1	Name Plate*10	
	B9968FF	1	Name Plate*7	
	B9968FH	1	Name Plate*5	
	B9968FJ	1	Name Plate*12, *16	
	B9968FK	1	Name Plate*6	(select)
	B9968FL	1	Name Plate*13, *17	
	B9968FM	1	Name Plate*4	
	B9968FN	1	Name Plate*11	
	B9967FM	1	Name Plate*19	
	B9967FL	1	Name Plate*20, *24	
	B9967FN	1	Name Plate*23	
	B9968FP	1	Name Plate*22	
	B9967FK	1	Name Plate*18	
	B9967FJ	1	Name Plate*21	
8	B9968LL	1	Input Terminal Assembly (DX102P not /H2)	(select)
	B9968LJ	1	Input Terminal Assembly (DX104P not /H2)	
	B9968LD	1	Input Terminal Assembly (DX106P not /H2, /N1, /N2)	
	B9968LM	1	Input Terminal Assembly (DX106P /N1, /N2 not /H2)	
	B9968LH	1	Input Terminal Assembly (DX112P not /H2, /N1, /N2)	
	B9968LR	1	Input Terminal Assembly (DX112P /N1, /N2 not /H2)	
	B9968LS	1	Input Terminal Assembly (DX102P /H2)	
	B9968LT	1	Input Terminal Assembly (DX104P /H2)	
	B9968LU	1	Input Terminal Assembly (DX106P /H2 and not /N1, /N2)	
	B9968LV	1	Input Terminal Assembly (DX106P /H2 and /N1, /N2)	
	B9968LW	1	Input Terminal Assembly (DX112P /H2 and not /N1, /N2)	
	B9968LX	1	Input Terminal Assembly (DX112P /H2 and /N1, /N2)	
9	B9968DJ	2	Screw	
◎10	B9968DF	1	Cover Assembly	
11	B9900SG	2	Screw	
12	B9968DG	1	Cover	

Item	Part No.	Qty	Description	
◎13	B9967FD	1	Name Plate (DX102P not /H2)	(select)
	B9968FV	1	Name Plate (DX104P not /H2)	
	B9967FA	1	Name Plate (DX106P not /H2, /N1, /N2)	
	B9967FE	1	Name Plate (DX106P /N1, /N2 not /H2)	
	B9967FB	1	Name Plate (DX112P not /H2, /N1, /N2)	
	B9967FF	1	Name Plate (DX112P /N1, /N2 not /H2)	
	B9968JH	1	Name Plate (DX102P /H2)	
	B9968JJ	1	Name Plate (DX104P /H2)	
	B9968JL	1	Name Plate (DX106P /H2 and not /N1, /N2)	
	B9968JM	1	Name Plate (DX106P /H2 and /N1, /N2)	
	B9968JN	1	Name Plate (DX112P /H2 and not /N1, /N2)	
	B9968JP	1	Name Plate (DX112P /H2 and /N1, /N2)	
14	B9967AE	1	Name Plate (not /H5□, /P1)	(select)
	B9967DZ	1	Name Plate (/P1)	
15	B9968EG	1	Power Plate (not /H5□)	
16	B9967AF	1	Name Plate (/H5□ and not /P1)	
17	B9968RJ	1	COMM Board Assembly (/C2)	(select)
	B9968RK	1	COMM Board Assembly (/C3)	
	B9968RG	1	COMM Board Assembly (not /C2, /C3)	
18	Y9308LB	2	B.H. Screw, M3x8	
19	B9968AJ	1	Sheet (not /C2, /C3)	(select)
	B9968AG	1	Name Plate (/C2)	
	B9968AH	1	Name Plate (/C3)	
20	Y9305LB	1	B.H. Screw, M3x5	
21	B9968EH	1	Blind Bracket (not /C2, /C3)	(select)
	B9968EJ	1	RS-232 Bracket (/C2)	
22	Y9305TS	1	Tapping Screw (not /C3)	
23	Y9308LB	1	B.H. Screw, M3x8	
24	B9968EE	1	Terminal	
◎25	A1447JZ	1	Modular Cover	
26	B9968HE	1	Name Plate (/H5□ and not /P1)	

Note:
◎ CMPL Parts

Model Code	Suffix Code (options)				
DX1□□P-□-□	/A1				*1
	/A2				*2
	/A3				*3
	/AR1				*14
	/AR2				*15
		/F1			*4
	/A1	/F1			*5
	/A2	/F1			*6
			/R1		*7
	/A1		/R1		*8
	/A2		/R1		*9
	/A3		/R1		*10
		/F1	/R1		*11
	/A1	/F1	/R1		*12
	/A2	/F1	/R1		*13
	/AR1	/F1			*16
	/AR2	/F1			*17
				/TPS2	*18
	/A1			/TPS2	*19
	/AR1			/TPS2	*20
	/A1		/R1	/TPS2	*24
			/R1	/TPS2	*21
				/TPS4	*22
			/R1	/TPS4	*23

7.2 DX100P Standard Accessories

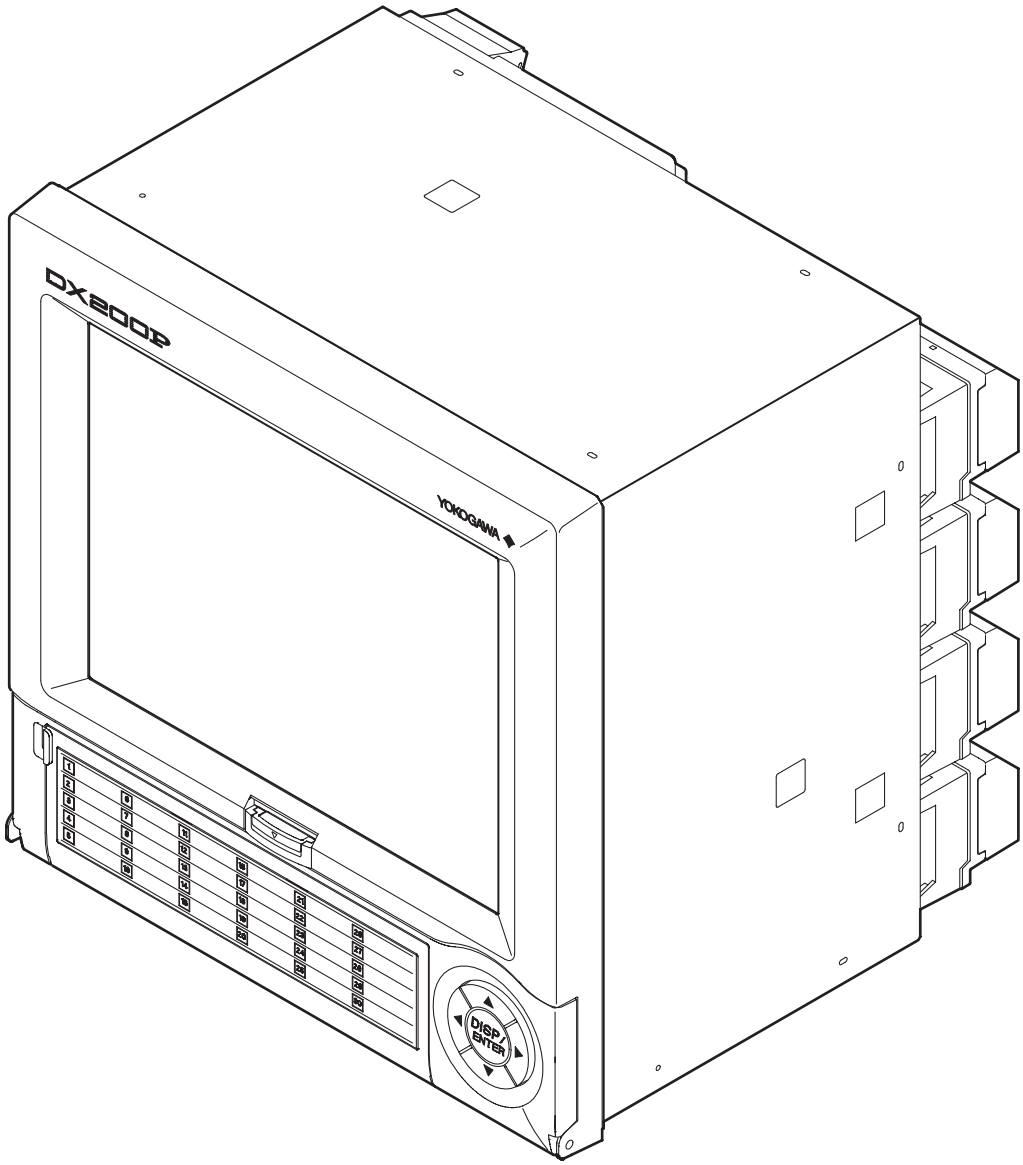


Item	Part No.	Qty	Description	
◎ 1	A1006WD	1	Power Supply Code (UL/CSA standard) *, †	(select)
◎ 2	A1009WD	1	Power Supply Code (VDE standard) ‡	
◎ 3	A1023WD	1	Power Supply Code (BS standard) §	
◎ 4	A1024WD	1	Power Supply Code (AS standard) ‖	
◎ 6	A1347EF	1	Fuse (not /P1)	(select)
	A1352EF	1	Fuse (/P1)	
7	IM04L05A01-01E	1	DX100P User's Manual	
	IM04L05A01-17E	1	DX100P/DX200P Communication Interface User's Manual	
	IM04L05A01-61E	1	DAQSIGNIN User's Manual	
◎ 8	B9900BX	2	Bracket Assembly (not /H5□)	
◎ 9	E9655FX	5	B.H. Screw, M4x6 (±)	
◎ 10	A1053MP	1	Mag Memory : Zip 100MB disk (DX1□□P-2)	
◎ 11	B9968PK	1	Memory System : ATA flash memory card (DX1□□P-3)	
◎ 12	DX150-01	1	DAQSIGNIN (J)	(select)
	DX150-02	1	DAQSIGNIN (E)	

Note:

*	DX1□□P-□-□-/H5M
†	DX1□□P-□-□-/H5D
‡	DX1□□P-□-□-/H5F
§	DX1□□P-□-□-/H5J
‖	DX1□□P-□-□-/H5R
◎	CMPL Parts

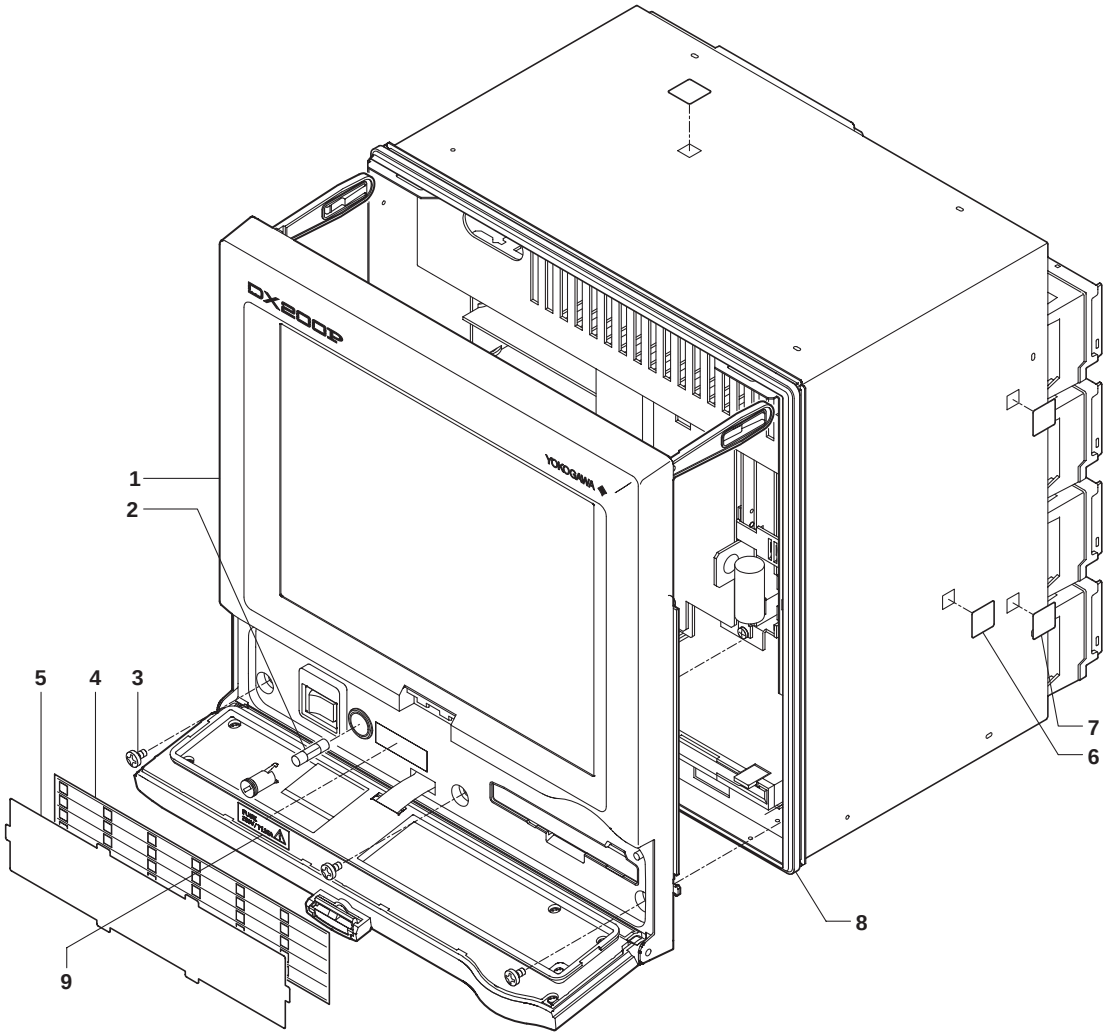
7.3 DX200P Customer Maintenance Parts List



Note:

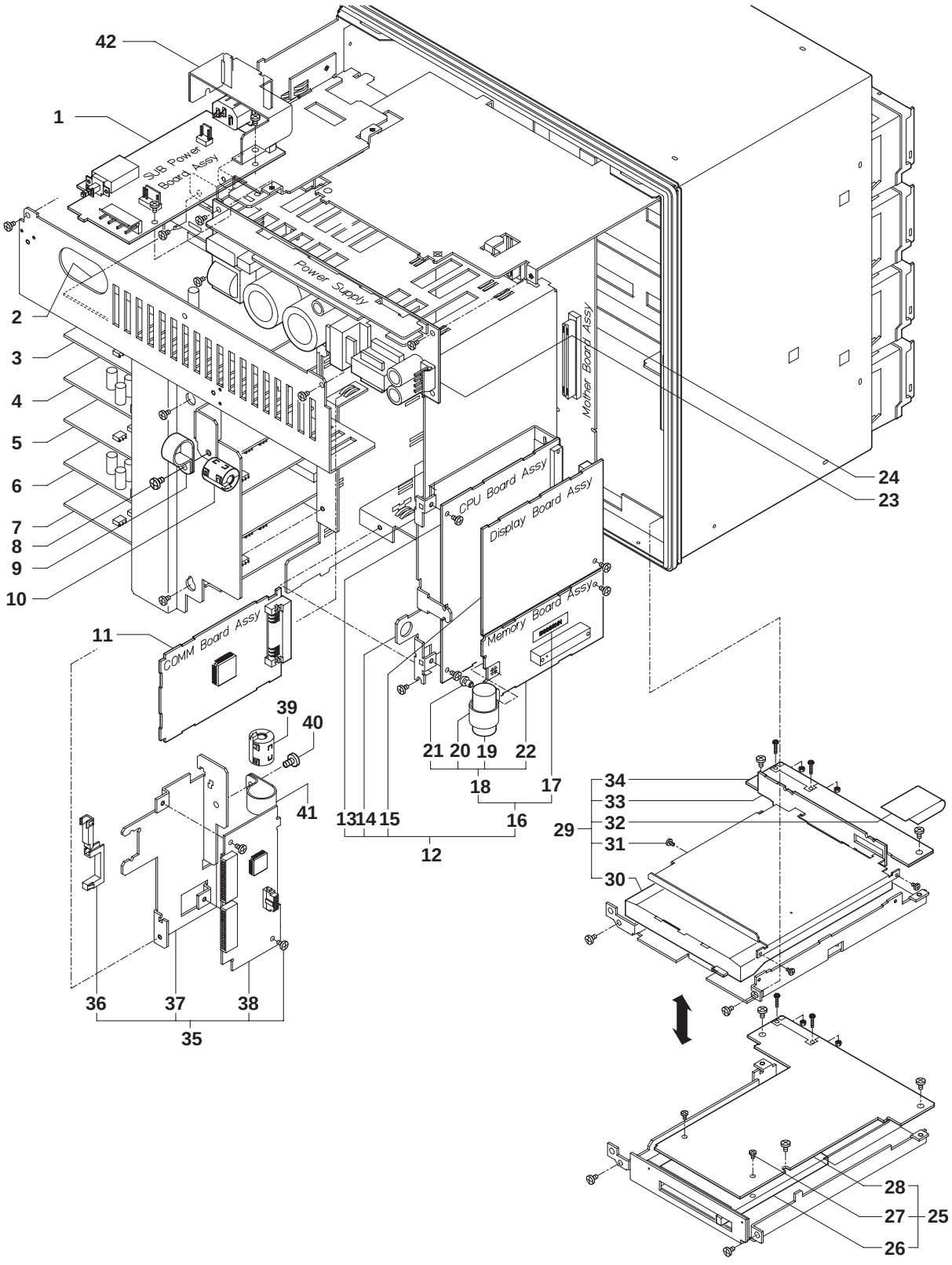
Parts marked with a ◎ symbol are CMPL (Customer Maintenance Parts List) parts.

Complete Set



Item	Part No.	Qty	Description
1	B8702BA	1	Bezel Assembly† } (select) (see page 7-13)
	B8702BE	1	Bezel Assembly*
◎ 2	A1423EF	2	Fuse (not /P1) } (select) (see page 7-16)
	A1354EF	2	Fuse (/P1)
3	Y9414LB	3	B.H. Screw, M4x14
◎ 4	B9968AN	1	Tag Plate (DX210P, 220P, 230P) } (select)
	B9968AP	1	Tag Plate (DX204P, 208P)
◎ 5	B9968AM	1	Tag Cover
◎ 6	B9968AT	4	Sheet (not /H5□)
◎ 7	B9968AK	4	Sheet (not /H5□)
8	B9968AX	1	Packing
◎ 9	B9968AD	1	Name Plate (not /P1) } (select)
	B9968HL	1	Name Plate (/P1)

Note:
* DX2□□P-□-1
† DX2□□P-□-2
◎ CMPL parts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SUB Power Board Assy
Power Supply
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Mother Board Assy
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CPU Board Assy
Display Board Assy
Memory Board Assy
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COMM Board Assy
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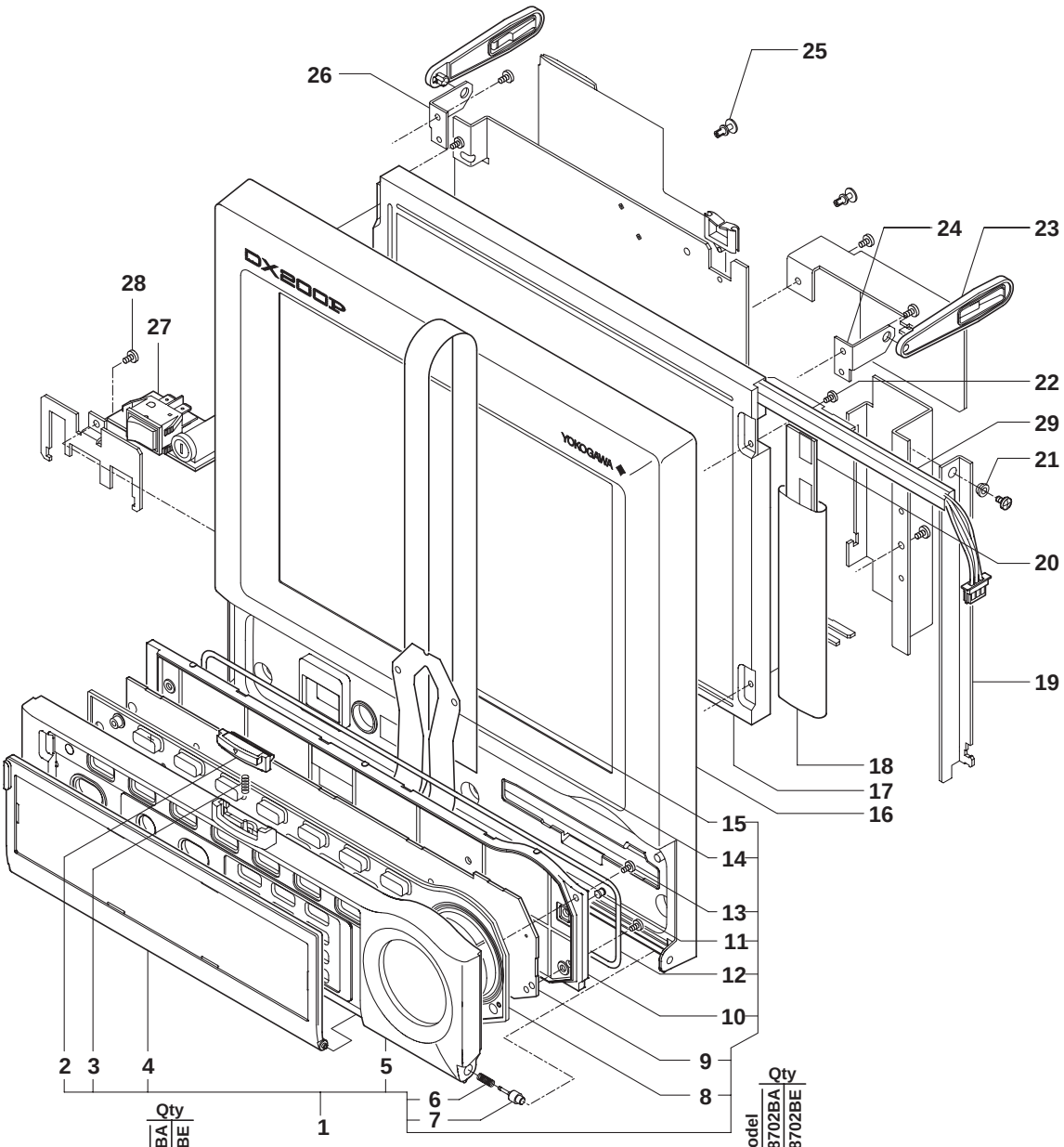
7.3 DX200P Customer Maintenance Parts List

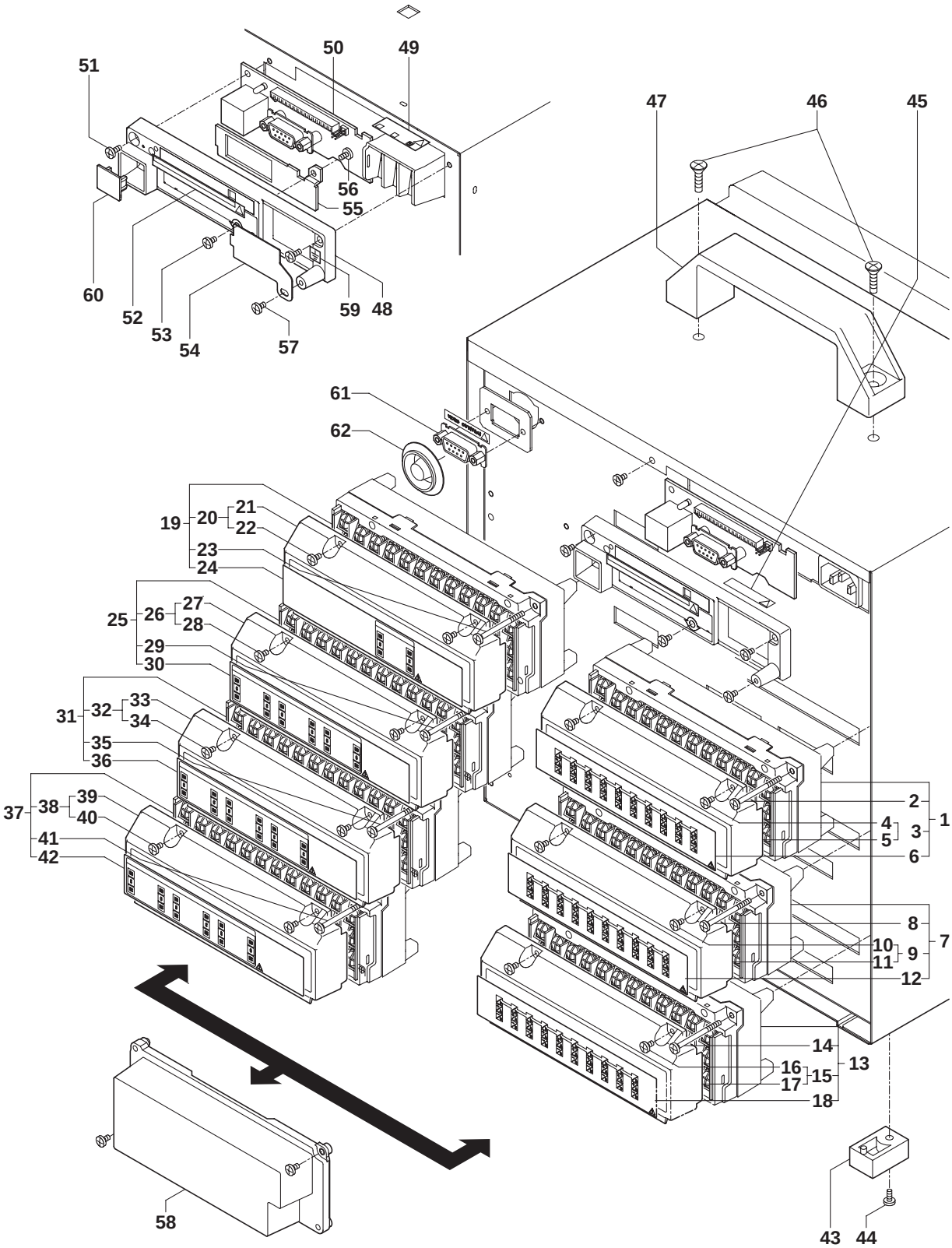
Item	Part No.	Qty	Description
1	B9968SL	1	S-Sub Power Board Assembly (not /H5□, /P1)
	B9968TL	1	I-Sub Power Board Assembly (/H5□ and not /P1) (select)
	B9968TK	1	S24-Sub Power Board Assembly (/P1)
2	B9968QC	1	Fast 2AD (PT) Assembly (DX204P, 208P) (not /N1)
	B9968QA	1	Slow AD (PT) Assembly (DX210P, 220P, 230P) (not /N1) (select)
	B9968QF	1	Fast 2AD (CU) Assembly (DX204P, 208P) (/N1)
	B9968QD	1	Slow AD (CU) Assembly (DX210P, 220P, 230P) (/N1)
3	B9968SB	1	4ch Scanner Assembly (DX204P, 208P)
	B9968SD	1	10ch Scanner Assembly (DX210P, 220P, 230P) (not /N1, /N2) (select)
	B9968TY	1	10ch ISO Scanner Assembly (DX210P, 220P, 230P) (/N1 or /N2)
4	B9968QC	1	Fast 2AD (PT) Assembly (DX208P) (not /N1)
	B9968QA	1	Slow AD (PT) Assembly (DX220P, 230P) (not /N1) (select)
	B9968QF	1	Fast 2AD (CU) Assembly (DX208P) (/N1)
	B9968QD	1	Slow AD (CU) Assembly (DX220P, 230P) (/N1)
5	B9968SB	1	4ch Scanner Assembly (DX208P)
	B9968SD	1	10ch Scanner Assembly (DX220P, 230P) (not /N1, /N2) (select)
	B9968TY	1	10ch ISO Scanner Assembly (DX220P, 230P) (/N1or /N2)
6	B9968QA	1	Slow AD (PT) Assembly (DX230P) (not /N1) (select)
	B9968QD	1	Slow AD (CU) Assembly (DX230P) (/N1)
7	B9968SD	1	10ch Scanner Assembly (DX230P) (not /N1, /N2) (select)
	B9968TY	1	10ch ISO Scanner Assembly (DX230P) (/N1 or /N2)
8	Y9414LB	1	B.H. Screw, M4x14
9	B9968EL	1	Clamp
10	A1193MN	1	Magnetic Parts
11	B9968TQ	1	Comm Board Assembly (/C2)
	B9968TP	1	Comm Board Assembly (/C3) (select)
	B9968SQ	1	Comm Board Assembly (not /C2, /C3)
12	B8702LA	1	CPU Board Assembly
13	B8700RA	1	CPU Board Assembly
14	B9968CX	1	CPU Bracket
15	B8700RK	1	Display Board Assembly
16	B8702NA	1	Memory Board Assembly
17	B8702MA	1	Name Plate
18	-	1	Memory Board & Battery Assembly
19	B9900BR	1	Battery Assembly
20	A9069KY	1	Clamp
21	B9968EM	1	Rivet
22	-	1	Memory Board Assembly
23	A1484UP	1	Power Supply (not /P1) (select)
	B9968SZ	1	DC24 Power Assembly (/P1)
24	B9968SP	1	Mother Board Assembly (not /H5□) (select)
	B9968RP	1	Mother Board Assembly (/H5□)
25	B9968GL	1	ATA Drive Assembly(DX2□□P-3)
26	A1492JS	1	Socket
27	Y9208LB	2	Screw
28	B9968SV	1	PC-Card Board Assembly
29	B9968GD	1	Zip Drive Assembly(DX2□□P-2)
30	A1150UN	1	Memory System
31	Y9203LB	3	Screw
32	B9968MB	1	IDE FFC
33	B9968SU	1	Zip Conn Board Assembly
34	B9968ST	1	IDE Board Assembly
35	B9968HQ	1	VGA Board Assembly (/D5)
36	B9968GS	1	Clamp
37	-	1	Bracket
38	B9968UX	1	VGA Board Assembly
39	A1193MN	1	Magnetic Parts (/D5)
40	Y9414LB	1	B.H. Screw, M4x14 (/D5)
41	B9968EL	1	Clamp (/D5)
42	B9968DQ	1	Bracket (/H5□)

Bezel Assembly



Item	Part No.	Model B8702BA	Model B8702BE	Description
1	B9968BR	1		Key Case Assembly (for English) } (select)
	B9968BV		1	Key Case Assembly (for Japanese) } (select)
2	B9968BX	1	1	Door Knob
3	B9900NQ	1	1	Spring
4	B9968BW	1	1	Front Plate
5	B9968BS	1	1	Front Cover
6	B9567AQ	1	1	Spring
7	B9968BY	1	1	Hinge Pin
8	B9968EA	1		Key Top (for English) } (select)
	B9968EC		1	Key Top (for Japanese) } (select)
9	B9968SK	1	1	Switch Board Assembly
10	B9968BT	1	1	Front Case
11	B9968BZ	1	1	Micro Switch Pin
12	B9968AY	1	1	Packing
13	B9968GZ	5	5	Screw

Item	Part No.	Model B8702BA	Model B8702BE	Description
14	B9968BU	1	1	FPC Guard
15	B9968MC	1	1	Key FFC
16	B8702BB	1	1	Sub Bezel Assembly
17	A1067VA	1	1	LCD
18	B9968ML	1	1	Inverter Cover
19	B9968BL	1	1	Stay Bracket
20	A1527UP	1	1	Power Supply
21	B9968EN	1	1	Bushing
22	B9988DL	2	2	Screw
23	B9968BM	2	2	Hinge Arm
24	B9968BQ	1	1	Hinge Bracket
25	B9543SQ	5	5	NRP-345
26	B9968BP	1	1	Hinge Bracket
27	B9968SM	1	1	Power Switch Board Assembly
28	B9988DL	1	1	Screw
29	A1046VZ	1	1	Back Light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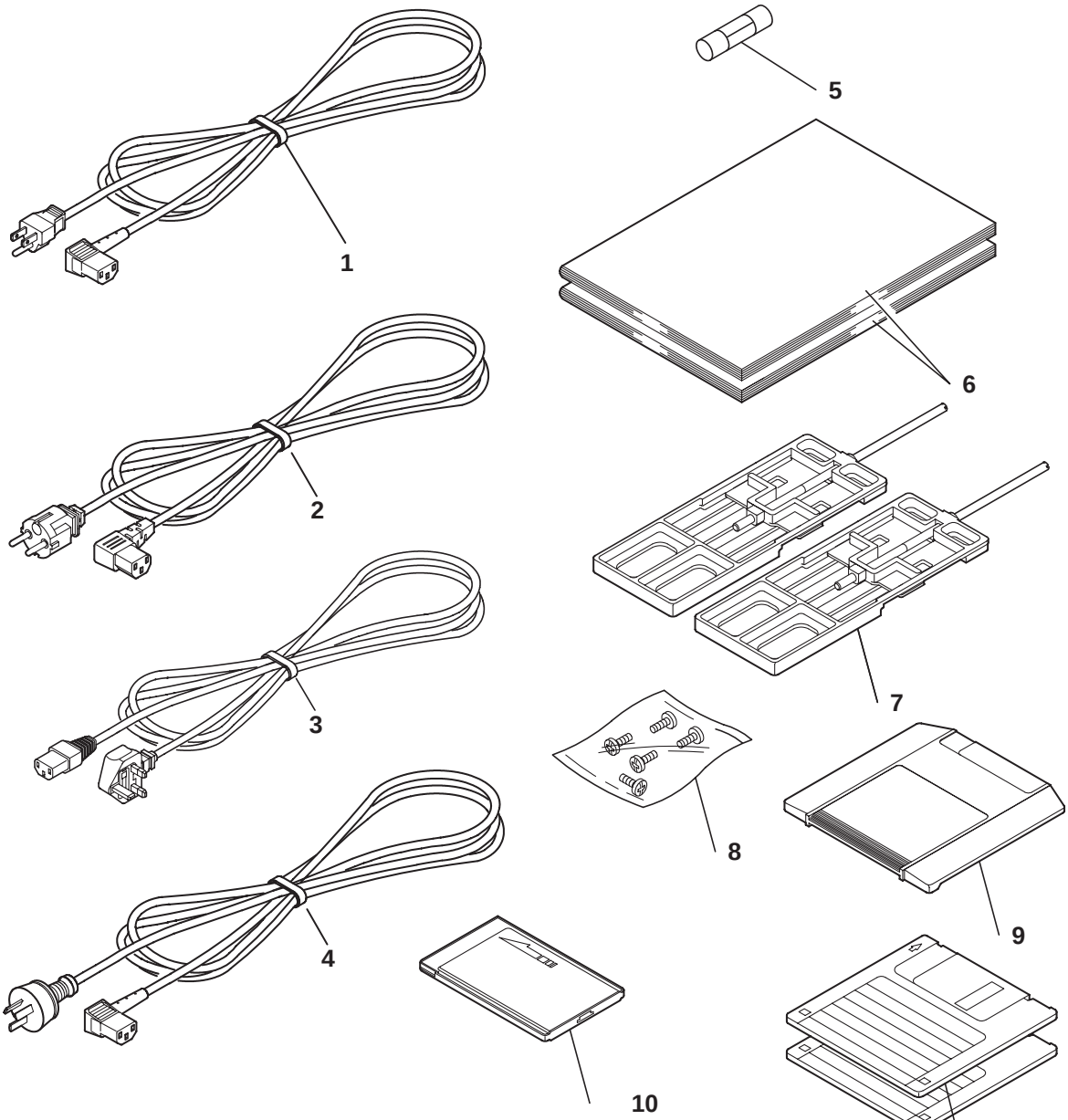
Item	Part No.	Qty	Description	
1	B9968LE	1	Input Terminal Assembly (DX210P, 220P, 230P) (not /H2, /N1, /N2)	(select)
	B9968LN	1	Input Terminal Assembly (DX210P, 220P, 230P) (/N1, /N2 and not /H2)	
	B9968JB	1	Input Terminal Assembly (DX210P, 220P, 230P) (/H2 and not /N1, /N2)	
	B9968JC	1	Input Terminal Assembly (DX210P, 220P, 230P) (/H2 and /N1, /N2)	
	B9968LJ	1	Input Terminal Assembly (DX204P, 208P) (not /H2)	
	B9968LT	1	Input Terminal Assembly (DX204P, 208P) (/H2)	
2	B9968DJ	2	Screw	
3	B9968DF	1	Cover Assembly	
4	B9900SG	2	Screw	
5	B9968DG	1	Cover	
6	B9968EP	1	Name Plate (DX210P, 220P, 230P) (not /H2, /N1, /N2)	(select)
	B9968FS	1	Name Plate (DX210P, 220P, 230P) (/N1, /N2 and not /H2)	
	B9968JQ	1	Name Plate (DX210P, 220P, 230P) (/H2 and not /N1, /N2)	
	B9968JR	1	Name Plate (DX210P, 220P, 230P) (/H2 and /N1, /N2)	
	B9968FV	1	Name Plate (DX204P, 208P) (not /H2)	
	B9968JJ	1	Name Plate (DX204P, 208P) (/H2)	
7	B9968LF	1	Input Terminal Assembly (DX220P, 230P) (not /H2, /N1, /N2)	(select)
	B9968LP	1	Input Terminal Assembly (DX220P, 230P) (/N1/N2 and not /H2)	
	B9968JD	1	Input Terminal Assembly (DX220p, 230P) (/H2 and not /N1, /N2)	
	B9968JE	1	Input Terminal Assembly (DX220P, 230P) (/H2 and /N1, /N2)	
	B9968LK	1	Input Terminal Assembly (DX208P) (not /H2)	
	B9968JA	1	Input Terminal Assembly (DX208P) (/H2)	
58	B9968DN	1	Conn Cover Assembly (DX210P, 204P)	
8	B9968DJ	2	Screw	
9	B9968DF	1	Cover Assembly	
10	B9900SG	2	Screw	
11	B9968DG	1	Cover	
12	B9968EQ	1	Name Plate (DX220P, 230P) (not /H2, /N1, /N2)	(select)
	B9968FT	1	Name Plate (DX220P, 230P) (/N1, /N2 and not /H2)	
	B9968JS	1	Name Plate (DX220P, 230P) (/H2 and not /N1, /N2)	
	B9968JT	1	Name Plate (DX220P, 230P) (/H2 and /N1, /N2)	
	B9968FW	1	Name Plate (DX208P) (not /H2)	
	B9968JK	1	Name Plate (DX208P) (/H2)	
13	B9968LG	1	Input Terminal Assembly (DX230P) (not /H2, /N1, /N2)	(select)
	B9968LQ	1	Input Terminal Assembly (DX230P) (/N1, /N2 and not /H2)	
	B9968JF	1	Input Terminal Assembly (DX230P) (/H2 and not /N1, /N2)	
	B9968JG	1	Input Terminal Assembly (DX230P) (/H2 and /N1, /N2)	
58	B9968DN	1	Conn Cover Assembly (DX204P, 208P, 210P, 220P)	
14	B9968DJ	2	Screw	
15	B9968DF	1	Cover Assembly	
16	B9900SG	2	Screw	
17	B9968DG	1	Cover	
18	B9968ER	1	Name Plate (DX230P) (not /H2, /N1, /N2)	(select)
	B9968FU	1	Name Plate (DX230P) (/N1, /N2 and not /H2)	
	B9968JU	1	Name Plate (DX230P) (/H2 and not /N1, /N2)	
	B9968JV	1	Name Plate (DX230P) (/H2 and /N1, /N2)	
19	B9968KA	1	Option Terminal Assembly*1	(select)
	B9968KB	1	Option Terminal Assembly*12, *24	
	B9968KC	1	Option Terminal Assembly*2	
	B9968KD	1	Option Terminal Assembly*13, *25	
	B9968KE	1	Option Terminal Assembly*3, *4, *5	
	B9968KJ	1	Option Terminal Assembly*14, *15, *16	
	B9968KK	1	Option Terminal Assembly*11	
	B9968KL	1	Option Terminal Assembly*7	
	B9968KM	1	Option Terminal Assembly*18, *26	
	B9968KN	1	Option Terminal Assembly*8	
	B9968KP	1	Option Terminal Assembly*19, *27	
	B9968KQ	1	Option Terminal Assembly*6, *9, *10	
	B9968KR	1	Option Terminal Assembly*17, *20, *21	
58	B9968DN	1	Conn Cover Assembly	
20	B9968DF	1	Cover Assembly	
21	B9968DG	1	Cover	
22	B9900SG	2	Screw	
23	B9968DJ	2	Screw	
24	B9968EW	1	Name Plate*1	(select)
	B9968EX	1	Name Plate*12, *24	
	B9968EY	1	Name Plate*2	
	B9968EZ	1	Name Plate*13, *25	
	B9968FA	1	Name Plate*3, *4, *5	
	B9968FE	1	Name Plate*14, *15, *16	
	B9968FF	1	Name Plate*11	
	B9968FH	1	Name Plate*7	
	B9968FJ	1	Name Plate*18, *26	
	B9968FK	1	Name Plate*8	
	B9968FL	1	Name Plate*19, *27	
	B9968FM	1	Name Plate*6, *9, *10	
	B9968FN	1	Name Plate*17, *20, *21	

Model Code	Suffix Code (options)				
DX2□□P-□-□	/A1				*1
	/A2				*2
	/A3				*3
	/A4				*4
	/A5				*5
		/F1			*6
	/A1	/F1			*7
	/A2	/F1			*8
	/A3	/F1			*9
	/A4	/F1			*10
			/R1		*11
	/A1		/R1		*12
	/A2		/R1		*13
	/A3		/R1		*14
	/A4		/R1		*15
	/A5		/R1		*16
		/F1	/R1		*17
	/A1	/F1	/R1		*18
	/A2	/F1	/R1		*19
	/A3	/F1	/R1		*20
	/A4	/F1	/R1		*21
				/TPS4	*22
				/TPS8	*23
	/AR1				*24
	/AR2				*25
	/AR1	/F1			*26
	/AR2	/F1			*27

Item	Part No.	Qty	Description	
25	B9968KF	1	Option Terminal Assembly*4, *5, *9, *10	(select)
58	B9968DN	1	Conn Cover Assembly	
26	B9968DF	1	Cover Assembly	
27	B9968DG	1	Cover	
28	B9900SG	2	Screw	
29	B9968DJ	2	Screw	
30	B9968FB	1	Name Plate*4, *5, *9, *10	
31	B9968KG	1	Option Terminal Assembly *5, *10	(select)
	B9968KW	1	Option Terminal Assembly *23	
58	B9968DN	1	Conn Cover Assembly	
32	B9968DF	1	Cover Assembly	
33	B9968DG	1	Cover	
34	B9900SG	2	Screw	
35	B9968DJ	2	Screw	
36	B9968FC	1	Name Plate *5, *10	(select)
	B9968FP	1	Name Plate *23	
37	B9968KH	1	Option Terminal Assembly *5	(select)
	B9968KW	1	Option Terminal Assembly *22, *23	
58	B9968DN	1	Conn Cover Assembly	
38	B9968DF	1	Cover Assembly	
39	B9968DG	1	Cover	
40	B9900SG	2	Screw	
41	B9968DJ	2	Screw	
42	B9968FD	1	Name Plate *5	(select)
	B9968FP	1	Name Plate *22, *23	
43	B9961BS	4	Foot (/H5□)	
44	Y9306LS	4	B.H. Screw, M3x6 (/H5□)	
45	B9968AF	1	Name Plate (/H5□ and not /P1)	
46	Y9412ES	2	F.H. Screw, M4x12 (/H5□)	
47	B9961BQ	1	Handle (/H5□)	
48	B9968EE	1	Terminal	
49	B9968AE	1	Name Plate (not /H5□ /P1)	(select)
	B9968HM	1	Name Plate (/P1)	
50	B9968RJ	1	COMM Term Board Assembly (/C2)	(select)
	B9968RK	1	COMM Term Board Assembly (/C3)	
	B9968RG	1	COMM Term Board Assembly (not /C2, /C3)	
51	Y9308LB	2	B.H. Screw, M3x8	
52	B9968AG	1	Name Plate (/C2)	(select)
	B9968AH	1	Name Plate (/C3)	
	B9968AJ	1	Sheet (not /C2, /C3)	
53	Y9305LB	1	B.H. Screw, M3x5	
54	B9968EG	1	Power Plate (not /H5□)	
55	B9968EH	1	Blind Bracket (not /C2, /C3)	(select)
	B9968EJ	1	RS-232 Bracket (/C2)	
56	Y9305TS	1	Tapping Screw (not /C3)	
57	Y9308LB	1	B.H. Screw, M3x8	
59	B9968HE	1	Name Plate (/H5□ and not /P1)	
60	A1447JZ	1	Modular Cover	
61	B9968MN	1	VGA Cable (/D5)	
62	B9968EK	1	Cap (not /D5)	

7.4 DX200P Standard Accessories



Item	Part No.	Qty	Description
◎ 1	A1006WD	1	Power Supply Code (UL.CSA standard) *, †
◎ 2	A1009WD	1	Power Supply Code (VDE standard) ‡
◎ 3	A1023WD	1	Power Supply Code (BS standard) §
◎ 4	A1024WD	1	Power Supply Code (AS standard) ‖
			(select)
◎ 5	A1423EF	1	Fuse (not /P1)
	A1354EF	1	Fuse (/P1)
			(select)
6	IM04L06A01-01E	1	DX200P User's Manual
	IM04L05A01-17E	1	DX100P/DX200P Communication Interface User's Manual
	IM04L05A01-61E	1	DAQSIGNIN User's Manual
◎ 7	B9900BX	2	Bracket Assembly (not /H5□)
◎ 8	E9655FX	5	B.H. Screw, M4x6 (±)
◎ 9	A1053MP	1	Mag Memory : Zip 100MB disk (DX2□□P-2)
◎ 10	B9968PK	1	Memory System :ATA flash memory card (DX2□□P-3)
◎ 11	DX150-01	1	DAQSIGNIN (J)
	DX150-02	1	DAQSIGNIN (E)
			(select)

Note:

*	DX2 □□P- /H5M
†	DX2 □□P- /H5D
‡	DX2 □□P- /H5F
§	DX2 □□P- /H5J
‖	DX2 □□P- /H5R
◎	CMPL parts